Sweden

This document is a compilation of all questions, justifications, and sources used to determine the 2021 Global Health Security Index scores for Sweden. For a category and indicator-level summary, please see the Country Profile for Sweden.

Category 1: Preventing the emergence or release of pathogens with potential for international concern

1.1 ANTIMICROBIAL RESISTANCE (AMR)

1.1.1 AMR surveillance, detection, and reporting

1.1.1a

Is there a national AMR plan for the surveillance, detection, and reporting of priority AMR pathogens?

Yes, there is evidence of an AMR plan, and it covers surveillance, detection, and reporting = 2, Yes, there is evidence of an AMR plan, but there is insufficient evidence that it covers surveillance, detection, and reporting = 1, No evidence of an AMR plan = 0

Current Year Score: 2

There is a national AMR plan in Sweden for the surveillance, detection and reporting of priority AMR pathogens. The most recent plan, which is valid from 2020 to 2023, is called "Swedish strategy to combat antibiotic resistance" and was released in April 2020. The plan aims to increase knowledge through better surveillance; promote preventative measures and responsible use of antibiotics; and increase awareness around AMR and countermeasures. A main objective of the plan is to increase knowledge of AMR with detection and reporting. [1] There is broad political consensus on prioritising AMR awareness in the population and the AMR plan aims to strengthen Swedish efforts both domestically and abroad. [1] Strama is the Swedish strategic programme against antibiotic resistance that was launched in 1995, and acts as an advisory body to the Public Health Agency of Sweden. [2]

[1] Government Offices of Sweden. April 2020. "Swedish strategy to combat antibiotic resistance". [https://www.government.se/articles/2020/04/updated-swedish-strategy-to-combat-antibiotic-resistance/] Accessed 15 January 2021
[2] Public Health Agency of Sweden. December 2020. "Swedish work on containment of antibiotic resistance". [https://www.folkhalsomyndigheten.se/the-public-health-agency-of-sweden/communicable-disease-control/antibiotics-and-antimicrobial-resistance/swedish-work-on-containment-of-antibiotic-resistance/] Accessed 15 January 2021.

1.1.1b

Is there a national laboratory/laboratory system which tests for priority AMR pathogens?

All 7 + 1 priority pathogens = 2 , Yes, but not all 7+1 pathogens = 1 , No = 0

Current Year Score: 2

In Sweden there are national laboratories that test all 7+1 priority pathogens. The Public Health Agency (PHA, "Folkhälsomyndigheten") runs national microbial surveillance programmes in collaboration with the national laboratory system. The PHA runs 19 bacteria surveillance programmes and these include all 7+1 priority pathogens: E. coli, K. pneumonia, S. aureus ("MRSA" in Swedish), S. pneumoniae, Salmonella spp., Shigella spp, N. gonorrheae and Mycobacterium tuberculosis. [1,2] Sweden also takes part in the European monitoring programme EARS-Net which monitors for invasive isolates (mainly isolates from blood) from seven bacterial species. The monitoring includes seven bacterial species from invasive infections: S. aureus, S. pneumoniae, E. faecalis, E. faecium, E. coli, K pneumoniae and P. aeruginosa as well as Acinetobacter species which have been included since 2012. Three-quarters of laboratories in Sweden participate in EARS-

Net. [3]

[1] Public Health Agency of Sweden. 2020. "Mikrobiella och immunologiska övervakningsprogram". [https://www.folkhalsomyndigheten.se/mikrobiologi-laboratorieanalyser/mikrobiella-och-immunologiska-overvakningsprogram/] Accessed 15 January 2021.
[2] Public Health Agency of Sweden. 2017. "Information om de mikrobiella övervakningsprogrammen". [https://www.folkhalsomyndigheten.se/mikrobiologi-laboratorieanalyser/mikrobiella-och-immunologiska-overvakningsprogram/information-om-de-mikrobiella-overvakningsprogrammen/#mrsa] Accessed 15 January 2021.
[3] Public Health Agency of Sweden. 2014. "Swedish work on containment of antibiotic resistance: tools, methods and experiences". [https://www.folkhalsomyndigheten.se/contentassets/dae82c7afd424a57b57ec81818793346/swedish-work-on-containment-of-antibiotic-resistance.pdf] Accessed 15 January 2021.

1.1.1c

Does the government conduct environmental detection or surveillance activities (e.g., in soil, waterways) for antimicrobial residues or AMR organisms?

Yes = 1 , No = 0

Current Year Score: 1

In Sweden, there is public evidence that the government is conducting environmental surveillance. The updated Swedish Strategy to combat antimicrobial resistance, which was released in April 2020, incorporates environmental monitoring of AMR pathogens and the environmental agency conducts surveillance activities (e.g. in soil, waterways, etc.) for antimicrobial residues or AMR organisms. An objective of the strategy is to improve data on "the emissions of antibiotics to the environment". The strategy calls on relevant stakeholders to "to observe a high level of vigilance, use rapid diagnostic techniques and apply established procedures and guide-lines to prevent, detect and halt the spread of infectious disease" and notes that wastewater treatment technology will treat pharmaceutical residues and other persistent substances." [1] Antibiotics have been included national monitoring since 2010, and the highest reported concentrations have been for clindamycine, roxithromycin, erythromycin and clarithromycine. [2] Regional environmental monitoring reports also include concentrations of AMR pathogens such as ciproflaxin and tetracycline. [3,4] In 2020, the Swedish Medical Products Agency (MPA, "Läkemedelsverket") presented a survey on Nordic environmental monitoring of antibiotics and antibiotic resistance, but the report is not available online. [5]

[1] Government Offices of Sweden. April 2020. "Swedish strategy to combat antibiotic resistance". [https://www.government.se/articles/2020/04/updated-swedish-strategy-to-combat-antibiotic-resistance/] Accessed 15 January 2021
[2] Swedish Environmental Research Institute. April 2015. "Report on Pharmaceutical residues and other emerging substances in the effluent of sewage treatment plants". [http://vav.griffel.net/filer/C_IVL2015-B2226.pdf] Accessed 15 January 2021
[3] Länsstyrelsen i Jönköpings län. 2020. " 2020:18 Miljögiftsundersökningar i Jönköpings län 2017-2019". [https://www.lansstyrelsen.se/jonkoping/tjanster/publikationer/2020/202018-miljogiftsundersokningar-i-jonkopings-lan-2017-2019.html] Accessed 15 January 2021
[4] Halmstad University. 2016. "Rening i våtmarker försök i Halland". [https://docplayer.se/31705767-Rening-i-vatmarker-forsok-i-halland.html] Accessed 15 January 2021.
[5] Swedish Medical Products Agency. 2020. "Nordic environmental monitoring of antibiotics and antibiotic resistance". [https://www.lakemedelsverket.se/en/miljoarbete/nordic-environmental-monitoring-of-antibiotics-and-antibiotic-resistance] Accessed 15 January 2021.

1.1.2 Antimicrobial control

1.1.2a

Is there national legislation or regulation in place requiring prescriptions for antibiotic use for humans?

Yes = 2 , Yes, but there is evidence of gaps in enforcement = 1 , No = 0

Current Year Score: 2

In Sweden, there are national requirements for prescriptions for antibiotic use in humans and the usage is very low. The Swedish Medical Products Agency (MPA, "Läkemedelsverket") is responsible for regulation and surveillance of medicinal drugs and medical devices. MPA keeps a list of medicinal products. All antibiotics (e.g. penicillin, amoxicillin, erythromycin, ciprofloxacin) require a doctor's prescription. [1] The 2020 Swedish strategy to combat antibiotic resistance is designed around requiring prescriptions to monitor the use of antibiotics by prescribers (i.e. doctors and veterinarians). [2] The Public Health Agency of Sweden (FHM, "Folkhälsomyndigheten") and National Veterinary Institute publish an annual report on the restricted use of antibiotics. In 2019, sales of antibiotics for humans decreased 2.3% compared to 2018. [3] In fact, sales have been so low that the government identified the risk that companies might not introduce new products into the Swedish market due to low demand. In response, the FHM launched a pilot program in 2018 to ensure the availability of particularly medically important antibiotics. The program runs through 2022. [4]

[1] Swedish Medical Products Agency. 2021. "Läkemedelsfakta". [https://www.lakemedelsverket.se/sv/sok-lakemedelsfakta?medProdName=Ciproxin&activeTab=1] Accessed 15 January 2021
[2] Government Offices of Sweden. April 2020. "Swedish strategy to combat antibiotic resistance". [https://www.government.se/articles/2020/04/updated-swedish-strategy-to-combat-antibiotic-resistance/] Accessed 15 January 2021
[3] Public Health Agency of Sweden. 2020. "2019 SWEDRES SVARM: Sales of antibiotics and occurrence of antibiotic resistance in Sweden". [https://www.folkhalsomyndigheten.se/publicerat-material/publikationsarkiv/s/swedres-svarm-2019/] Accessed 15 January 2021
[4] Public Health Agency of Sweden. "Availability of antibiotics". [https://www.folkhalsomyndigheten.se/the-public-health-agency-of-sweden/communicable-disease-control/antibiotics-and-antimicrobial-resistance/availability-of-antibiotics/] Accessed 15 January 2021

1.1.2b

Is there national legislation or regulation in place requiring prescriptions for antibiotic use for animals?

Yes = 2 , Yes, but there is evidence of gaps in enforcement = 1 , No = 0

Current Year Score: 2

In Sweden, there are national requirements for prescriptions for antibiotic use in animals and antiobiotic usage is very low. The Swedish Medical Products Agency (MPA, "Läkemedelsverket") is responsible for regulation and surveillance of medicinal drugs and medical devices for humans and animals. MPA keeps a list of medicinal products for veterinary use. All antibiotics (e.g. benzylpenicillins, sulphonamides) require a doctor's prescription. [1,2] The 2020 update on the Swedish strategy to combat antibiotic resistance is designed around requiring prescriptions to monitor the use of antibiotics by prescribers (i.e. doctors and veterinarians). [3] Statistics on the sales of antibiotics for animals are available since 1980 and fallen from about 14.1 thousand kilograms in 2010 to 9.6 thousand kilograms in 2019. [2]

[1] Swedish Medical Products Agency. 2021. "Läkemedelsfakta". [https://www.lakemedelsverket.se/sv/sok-lakemedelsfakta?activeTab=1] Accessed 15 January 2021
[2] Public Health Agency of Sweden. 2020. "2019 SWEDRES SVARM: Sales of antibiotics and occurrence of antibiotic

resistance in Sweden". [https://www.folkhalsomyndigheten.se/publicerat-material/publikationsarkiv/s/swedres-svarm-2019/] Accessed 15 January 2021
[3] Government Offices of Sweden. April 2020. "Swedish strategy to combat antibiotic resistance". [https://www.government.se/articles/2020/04/updated-swedish-strategy-to-combat-antibiotic-resistance/] Accessed 15 January 2021

1.2 ZOONOTIC DISEASE

1.2.1 National planning for zoonotic diseases/pathogens

1.2.1a

Is there national legislation, plans, or equivalent strategy documents on zoonotic disease?

Yes = 1 , No = 0

Current Year Score: 1

In Sweden, there is a national law on zoonotic disease and coordination between government agencies responsible for animal and human health. The government of Sweden has paid careful attention to zoonotic diseases since 1997, when it established the Swedish Zoonosis Centre ("Zoonoscenter"), which has the responsibility to prevent spread of zoonotic agents to humans through any part of the production chain. [1] The Zoonosis Centre collects and analyses data on zoonoses on trends and sources of zoonoses and zoonotic agents and works with stakeholders to monitor zoonotic diseases in Sweden. In Sweden there is also a Zoonosis Council, which includes representatives from the Work Environment Authority (Arbetsmiljöverket), the State Veterinary Institute (Statens veterinärmedicinska anstalt, SVA), the Public Health Agency (Folkhälsomyndigheten), the Agriculture Department (Jordbruksverket), the National Food Agency (Livsmedelsverket), and the Swedish Municipalities and County Council (Sveriges Kommuner och Landsting, SKL), among others. [2] In 1999, the government issued Epizootic Law (1999: 657) ("Epizootilag"), which outlines measures for prevention and control of diseases that can spread from animals to humans. [3] The law calls for the Swedish Board of Agriculture to coordinate with Country Administrative Boards and any other relevant bodies of government to implement actions to prevent the spread of zoonoses. [3] Animal and human authorities constantly monitor for zoonotic diseases and a specific salmonella control plan has been implemented. [2,4,5] Information about zoonosis research is available from the National Veterinary Institute and the PHA has information on cooperation and working guidelines for the Zoonosis working group. [6,4]

[1] National Veterinary Institute. October 2019. "The Swedish Zoonosis Centre". [https://www.sva.se/en/about-us/the-swedish-zoonosis-centre/] Accessed 15 January 2021
[2] National Veterinary Institute. 25 January 2017. "Zoonoscenter". [https://www.sva.se/djurhalsa/smittlage/zoonoser/]. Accessed 15 January 2021
[3] Government of Sweden. 1999. "Epizootilag (1999:657)". [https://www.riksdagen.se/sv/dokument-lagar/dokument/svensk-forfattningssamling/epizootilag-1999657_sfs-1999-657] Accessed 15 January 2021
[4] Public Health Agency. November 2020. "Zoonosberedskap". [https://www.folkhalsomyndigheten.se/smittskydd-beredskap/krisberedskap/samordning-infor-och-vid-kris/zoonosberedskap/] Accessed 15 January 2021
[5] National Veterinary Institute. "Kontroll/övervakning salmonella". [https://www.sva.se/djurhalsa/djursjukdomar-a-o/salmonella-som-zoonos/] Accessed 15 January 2021
[6] National Veterinary Institute. "Zoonotic enteric diseases". [https://www.sva.se/en/research/strategic-research-areas/zoonotic-enteric-diseases/] Accessed 15 January 2021

1.2.1b

Is there national legislation, plans or equivalent strategy document(s) which includes measures for risk identification and reduction for zoonotic disease spillover events from animals to humans?

Yes = 1 , No = 0

Current Year Score: 0

In Sweden, there is no single document that includes measures for risk identification and reduction for zoonotic disease spillover events from animals to humans. Individual risk plans include some risk identification, but there is no information about steps to address these risks. The National Veterinary Institute (SVA) publishes information on hundreds of animal diseases including those that can be transmitted to humans [1]. Information pages on campylobacteriosis and salmonellosis, which are the most report zoonoses in Europe, describe the incubation period, susceptibility, source of infection, method of infection and control [2,3,4]. However, there is no information about the steps that agencies are taking to reduce the spread from animals to humans, such as monitoring the sale of live animals, preserving boundaries between humans and wildlife or instituting protection measures for people in contact with wildlife [3,4]. Websites for the Public Health Authority, Board of Agriculture, and Ministry of Education and Research do not have additional information. [5,6,7]

[1] National Veterinary Institute. "Djursjukdomar". [https://www.sva.se/djurhalsa/djursjukdomar-a-o/] Accessed February 25, 2021.
[2] European Union. "The European Union One Health 2019 Zoonoses Report". [https://www.ecdc.europa.eu/sites/default/files/documents/zoonoses-EU-one-health-2019-report.pdf] Accessed February 25, 2021.
[3] National Veterinary Institute. " Campylobacterios som zoonos". [https://www.sva.se/djurhalsa/djursjukdomar-a-o/campylobacterios-som-zoonos/] Accessed February 25, 2021.
[4] National Veterinary Institute. "Salmonella som zoonos". [https://www.sva.se/djurhalsa/djursjukdomar-a-o/salmonella-som-zoonos/#VetContentx4] Accessed February 25, 2021.
[5] Public Health Authority. "Smittskydd & beredskap". [https://www.folkhalsomyndigheten.se/smittskydd-beredskap/] Accessed February 25, 2021.
[6] Board of Agriculture. "Jordsbrukverket". [http://www.jordbruksverket.se/] Accessed February 25, 2021.
[7] Ministry of Education and Research. Ministry of Education and Research. [https://www.government.se/government-of-sweden/ministry-of-education-and-research/] Accessed February 25, 2021

1.2.1c

Is there national legislation, plans, or guidelines that account for the surveillance and control of multiple zoonotic pathogens of public health concern?

Yes = 1 , No = 0

Current Year Score: 1

In Sweden, there are multiple national plans that account for the surveillance and control of multiple zoonotic pathogens of public health concern. Certain diseases are subject to notification under the Communicable Disease Act ("Smittskyddslagen") of 2004. These cases must be reported to the Public Health Authority, which publishes data on surveillance. [1,2] The National Veterinary Institute summarizes guidelines and plans for more than 20 important zoonotic diseases, which include brucellosis, bird flu, rabies, salmonella and tuberculosis. [3] Surveillance reports are published annually with data from the human, animal and foodstuff sectors. [2,3,4] The annual report for 2019 covers more than 30 diseases has a particular focus on the animal-public health cross-domain analysis. [4] The Zoonosis law of 1999 specifically addresses surveillance, prevention and control of zoonotic diseases by veterinarians. Anyone who holds animals must keep records and perform

studies. If a veterinarian suspects a zoonotic disease, it must be reported to the National Board of Agriculture (Jordsbruksverket). Confirmed zoonoses must then be reported to "the State Veterinary Institute, the National Food Administration, the Public Health Agency, the infectious disease doctor, the municipal council or committees that perform tasks in the area of environmental and health protection and the district veterinarian." Section five of the Zoonosis law addresses the control of zoonotic diseases. It states that the Government or the Swedish Board of Agriculture may decide on individual cases and can choose among different options including: slaugher of diseased animals, restrictions, disinfection, or other methods." [5]

[1] Public Health Authority. 2013. " Övervakning av smittsamma sjukdomar". [https://www.folkhalsomyndigheten.se/smittskydd-beredskap/overvakning-och-rapportering/] Accessed 15 January 2021
[2] National Veterinary Institute. 17 August 2018. "Zoonoser". [https://www.sva.se/djurhalsa/zoonoser] Accessed 6 December 2018
[3] National Veterinary Institute. 2021. "Contagion status". [https://www.sva.se/en/our-topics/contagion-status/] Accessed 19 January 2021
[4] National Veterinary Institute. 2020. "Surveillance of infectious diseases in animals and humans 2019". [https://www.dataportal.se/sv/datasets/59_1643/surveillance-of-infectious-diseases-in-animals-and-humans-in-sweden-2019] Accessed 19 January 2021
[5] Government of Sweden. 1999. "Zoonoslag (1999:658)". [https://riksdagen.se/sv/dokument-lagar/dokument/svensk-forfattningssamling/zoonoslag-1999658_sfs-1999-658] Accessed 19 January 2021

1.2.1d

Is there a department, agency, or similar unit dedicated to zoonotic disease that functions across ministries?
Yes = 1 , No = 0

Current Year Score: 0

In Sweden, there is no department, agency or similar unit dedicated to zoonotic disease that functions across ministries. In 1997, the government of Sweden established the Swedish Zoonosis Council ("Zoonosrådet") with the objective to ensure cooperation between experts from different stakeholders including the veterinary-, human-, and food sector. The Zoonosis Council consists of representatives from the National Board of Health and Welfare, the Swedish Board of Agriculture, the Public Health Agency of Sweden, the National Food Administration, the National Veterinary Institute, Society for Veterinarians at the County Administrative Boards, The Swedish Society for Communicable Disease Prevention and Control. [1] The Zoonosis Council is convened when needed, for example when authorities feel the need for consultation or when an unexpected outbreak occurs. [2] The Public Health Agency is responsible for the Zoonosis Council and updates SOPs as needed. [2] Additionally, the Department of Disease Control and Epidemiology within the National Veterinary Institute edits and publishes the annual report on surveillance of infectious diseases in animals and humans. [3] Websites for the Public Health Authority, Board of Agriculture, and Ministry of Education and Research do not have additional information. [4,5,6]

[1] National Veterinary Institute. June 2020. "Zoonoscenter". [https://www.sva.se/om-sva/zoonoscenter] Accessed 19 January 2021
[2] Public Health Agency. November 2020. "Arbetsrutin för zoonossamverkansgruppen." [https://www.folkhalsomyndigheten.se/smittskydd-beredskap/krisberedskap/samordning-infor-och-vid-kris/zoonosberedskap/] Accessed 19 January 2021
[3] National Veterinary Institute. 2020. "Surveillance of infectious diseases in animals and humans." [https://www.dataportal.se/sv/datasets/59_1643/surveillance-of-infectious-diseases-in-animals-and-humans-in-sweden-2019] Accessed 19 January 2021
[4] Public Health Authority. "Smittskydd & beredskap". [https://www.folkhalsomyndigheten.se/smittskydd-beredskap/]

Accessed February 25, 2021.
[5] Board of Agriculture. "Jordsbrukverket". [http://www.jordbruksverket.se/] Accessed February 25, 2021.
[6] Ministry of Education and Research. Ministry of Education and Research. [https://www.government.se/government-of-sweden/ministry-of-education-and-research/] Accessed February 25, 2021

1.2.2 Surveillance systems for zoonotic diseases/pathogens

1.2.2a

Does the country have a national mechanism (either voluntary or mandatory) for owners of livestock to conduct and report on disease surveillance to a central government agency?

Yes = 1 , No = 0

Current Year Score: 1

In Sweden, there is a mandatory national mechanism for owners of livestock to conduct and report on disease surveillance to a central government agency. According to Swedish Board of Agriculture, owners or caregivers of animals are obliged to immediately report any suspicion that an animal in has been infected with a serious infectious disease to a veterinarian. Veterinarians, or other animal health staff, who suspect an Epizootic disease are obliged to urgently report it to the County Administrative Board. [1] Disease-specific plans, such as the plans for salmonella and leptospirosis, also require owners to conduct and report disease surveillance. [2,3] This information is collected at the national level and an annual report is published. [4,5] Animals are registered through the Swedish Board of Agriculture and owners can report online or via a hotline. [6]

[1] Swedish Board of Agriculture. "Disease and infection control". [https://djur.jordbruksverket.se/amnesomraden/djur/sjukdomarochsmittskydd.4.1dbcbad113c7ffa7b0380003290.html] Accessed 19 January 2021
[2] National Veterinary Institute. November 2019. "Salmonellos som zoonos". [https://www.sva.se/djurhalsa/zoonoser/salmonellos-zoonos] Accessed 19 January 2021
[3] National Veterinary Institute. November 2019. "Leptospiros som zoonos". [https://www.sva.se/djurhalsa/zoonoser/leptospiros-som-zoonos] Accessed 19 January 2021
[4] National Veterinary Institute. 2020. "Contagion status". [https://www.sva.se/en/our-topics/contagion-status/] Accessed 19 January 2021
[5] National Veterinary Institute. 2020. "Surveillance of infectious diseases in animals and humans." [https://www.dataportal.se/sv/datasets/59_1643/surveillance-of-infectious-diseases-in-animals-and-humans-in-sweden-2019] Accessed 19 January 2021
[6] Swedish Board of Agriculture. "Logga in i CDB Internet" [http://www.jordbruksverket.se/etjanster/etjanster/etjansterfordjuragareochdjurhalsopersonal/cdbinternet/loggain.4.37e9ac46144f41921cd84b2.html] Accessed 19 January 2021

1.2.2b

Is there legislation and/or regulations that safeguard the confidentiality of information generated through surveillance activities for animals (for owners)?

Yes = 1 , No = 0

Current Year Score: 1

In Sweden, there are laws or guidelines that safeguard the confidentiality of information generated through surveillance activities for animals (for owners). The National Veterinary Institute (SVA, "Statens veterinärmedicinska anstalt") is responsible for "animal welfare, infection control, animal health and public health" in the country and provides full public disclosure for how personal data is processed. [1] According to the SVA website, the Swedish Board of Agriculture maintains personal data in accordance with the national Data Protection Ordinance. It surther states that: "When the information is collected, we must inform you about why we need your information, how we process it and whether it is disseminated further. We may not collect more information than is necessary for the purpose. Personal data must be protected against accidental or unintentional loss, destruction or damage or against unauthorized processing...The Swedish Board of Agriculture does not have the right to sell personal data from the registers, but leaves the data to other authorities in accordance with what follows from law or regulation. Data is not transferred abroad unless it is in accordance with regulations, directives or decisions from the EU as well as agreements with other states or international organizations". [1] The SVA is also required to process all data it collects or receives in compliance with the General Data Protection Regulation (EU) 2016/679 (GDPR). [1] For example, the data form for salmonella laboratory samples includes a section on data handling and compliance with the GDPR. [2] The 2019 report on the consumption of antibiotics also mentions data confidentiality. [3] The websites for the SVA, PHA and Board of Agriculture do not have additional information on specific regulation for data confidentiality for owners of animals. [1,4,5] However, the Swedish Data Protection Agency has website dedicated to data protection and the GDPR in Sweden. [6]

[1] National Veterinary Institute. December 2020. "Så här behandlar SVA dina personuppgifter". [https://jordbruksverket.se/om-webbplatsen/sa-behandlar-vi-dina-personuppgifter] Accessed 19 January 2021
[2] National Veterinary Institute. "Salmonellaodling - Individuella prover som poolas på laboratoriet". [https://www.sva.se/media/ptzfrhd3/remiss-salmonellaodling-individprov-samlingsprover.pdf] Accessed 19 January 2021
[3] Public Health Agency of Sweden. 2020. "2019 SWEDRES SVARM: Sales of antibiotics and occurrence of antibiotic resistance in Sweden". [https://www.folkhalsomyndigheten.se/publicerat-material/publikationsarkiv/s/swedres-svarm-2019/] Accessed 15 January 2021
[4] Public Health Agency. December 2020. "Information om hur Folkhälsomyndigheten behandlar personuppgifter". [https://www.folkhalsomyndigheten.se/om-folkhalsomyndigheten/om-webbplatsen/behandling-av-personuppgifter/] Accessed 19 January 2021
[5] Board of Agriculture. "Öppna data". [http://www.jordbruksverket.se/omjordbruksverket/oppnadata.4.10e2eedd15919993ebd3f1ab.html] Accessed 19 January 2021
[6] Swedish Data Protection Agency. "Dataskyddsförordningen". [https://www.datainspektionen.se/lagar--regler/dataskyddsforordningen/] Accessed 19 January 2021

1.2.2c

Does the country conduct surveillance of zoonotic disease in wildlife (e.g., wild animals, insects, other disease vectors)?
Yes = 1 , No = 0

Current Year Score: 1

Sweden conducts surveillance of zoonotic disease in wildlife (e.g. wild animals, insects, other disease vectors, etc). In 2006, the National Veterinary Institute (NVA), along with the Environmental Protection Agency (EPA) launched the Wildlife Disease Surveillance Program (VSOP) to monitor diseases of wild mammals and birds in Sweden. [1] Most monitoring of diseases among wild animals happens in post-mortem examinations and ancillary tests on found dead wildlife. Surveillance also targets collections of wildlife samples. [1] Surveillance reports are published annually and use a One Health approach with a focus on diseases that can transfer from wildlife to domestic animals or humans. [1,2] The SVA has a web-based form,

accessible by mobile phone, that allows the general public and professionals to report dead or sick wildlife. [3]

[1] National Veterinary Institute. 2020. "Wildlife disease monitoring in Sweden 2019". [https://www.sva.se/media/ceyf0nw3/wildlife-disease-surveillance-in-sweden-2019.pdf] Accessed 19 January 2021
[2] National Veterinary Institute. 2019. "Wildlife disease monitoring in Sweden 2018". [https://www.sva.se/media/35sd1itr/surveillance-2018.pdf] Accessed 19 January 2021
[3] National Veterinary Institute. 2021. "Rapportera vilda djur". [https://rapporteravilt.sva.se/] Accessed 21 January 2021.

1.2.3 International reporting of animal disease outbreaks

1.2.3a

Has the country submitted a report to OIE on the incidence of human cases of zoonotic disease for the last calendar year?

Yes = 1 , No = 0

Current Year Score: 0

2019

OIE WAHIS database

1.2.4 Animal health workforce

1.2.4a

Number of veterinarians per 100,000 people

Input number

Current Year Score: 39.12

2018

OIE WAHIS database

1.2.4b

Number of veterinary para-professionals per 100,000 people

Input number

Current Year Score: 1.08

2018

OIE WAHIS database

1.2.5 Private sector and zoonotic

1.2.5a

Does the national plan on zoonotic disease or other legislation, regulations, or plans include mechanisms for working with the private sector in controlling or responding to zoonoses?

Yes = 1 , No = 0

Current Year Score: 1

In Sweden, the national legislation on infectious and zoonotic diseases includes mechanisms for working with the private sector in controlling or responding to zoonoses. The responsibility to protect others from the spread of diseases and to report are described in the national law and apply to persons and entities in both the public and private sectors. The Communicable Disease Act of 2004 (Smittskyddslag (2004:168)) has the general requirement that all persons who suspect they have an infectious disease must take precautions to protect others and all physicians must report to the Public Health Authority. [1] SmiNet is the system where public and private physicians and laboratories can report diseases. [2] The older 1999 law on Epizoonotic Diseases (Epizootilag (1999:657)) has similar requirements, i.e., an infected person must take precautions to protect others and all veterinarians must report to the Board of Agriculture (Jordbruksverket). [3] The Board of Agriculture has various reporting policies and procedures for private sector stakeholderes, some of which are summarized in the Epizoonosis Handbook (Epizootihandboken), which is available online. [4] Some individual zoonosis plans, which are under the National Veterinary Institute (NVA), also mention cooperation with the private sector. For example, the plan on Salmonella, which was last updated in 2019, includes outlines the strategy for interaction with affected communities. The plan states that targets for salmonella control should de developed by authorities (the Swedish Board of Agriculture, the Food Administration, the Institute for Infectious Disease, National Board of Health and Veterinary Medicine) in collaboration with the health professionals, county boards and private sector. [5]

[1] Government of Sweden. 2004. "Smittskyddslag (2004:168)". [http://www.riksdagen.se/sv/dokument-lagar/dokument/svensk-forfattningssamling/smittskyddslag-2004168_sfs-2004-168] Accessed 19 January 2021
[2] Public Health Agency. November 2015. "SmiNet". [https://www.folkhalsomyndigheten.se/smittskydd-beredskap/overvakning-och-rapportering/sminet/] Accessed 19 January 2021
[3] Government of Sweden. 1999. "Epizootilag (1999:657)". [http://www.riksdagen.se/sv/dokument-lagar/dokument/svensk-forfattningssamling/epizootilag-1999657_sfs-1999-657] Accessed 19 January 2021
[4] Board of Agriculture. Epizootihandboken". [http://www.jordbruksverket.se/amnesomraden/djur/djurhalsopersonal/epizootihandboken.106.160b021b1235b6bb86180003962.html] Accessed 19 January 2021
[5] National Veterinary Institute. November 2019. "Salmonellos som zoonos". [https://www.sva.se/djurhalsa/djursjukdomar-a-o/salmonella-som-zoonos/] Accessed 19 January 2021

1.3 BIOSECURITY

1.3.1 Whole-of- government biosecurity systems

1.3.1a

Does the country have in place a record, updated within the past five years, of the facilities in which especially dangerous pathogens and toxins are stored or processed, including details on inventories and inventory management systems of those facilities?

Yes = 1 , No = 0

Current Year Score: 0

There is insufficient evidence that Sweden has in place a record, updated within the past 5 years, of the facilities in which especially dangerous pathogens and toxins are stored or processed. The Public Health Agency of Sweden (PHA, Folkhälsomyndigheten) is responsible for bio safety and biosecurity in the country, and according to its own website, this includes inventory management. [1] However, there is no publicly available information about whether the PHA maintains

lists or if they have been updated within the past five years. [1] There is, however, evidence of facility-level inventory record keeping. The PHA runs the only BSL-4 laboratory in the Nordic region that conducts diagnostics and research on viruses and other highly pathogenic microorganisms. The PHA also runs the inventory management systems for the lab, but detailed information about inventory management procedures is not available online from the PHA. [2] Although the government of Sweden submits an annual Confidence Building Measures report to the United Nations Office for Disarmament Affairs, it does not contain information on inventory management, but does include details on facilities which research and handle dangerous pathogens and toxins. [3] The reports confirm that the PHA operates the High Containment Laboratory, which is two separate BSL-4 units enclosing three laboratories with a total area of 136 squared meters. The reports confirm that the laboratory units conduct research on the following risk group 4 agents: Bunyavirus, Flavivirus, Arenavirus, Paramyxovirus, Filovirus, SARS-CoV, highly pathogenic avian influenza virus, Crimean-Congo haemorrhagic fever virus (CCHFV) and Ebola virus. [3,4] The Swedish Defence Research Agency (FOI) and the National Veterinary Institute (SVA) are also listed as government entities that have national biological defence research and development programmes. [4] The website for Swedish Defence Research Agency (FOI) confirms that it conducts research on dangerous pathogens, but does not include detailed information about inventory management. [5] The websites for the National Veterinary Institute (SVA) and VERTIC database do not have information about this. [6,7]

[1] Public Health Agency. 2021. "Bioskydd". [https://www.folkhalsomyndigheten.se/mikrobiologi-laboratorieanalyser/biosakerhet-och-bioskydd/bioskydd/] Accessed 17 January 2021
[2] Public Health Agency. November 2020. "P4-laboratoriet vid Folkhälsomyndigheten". [https://www.folkhalsomyndigheten.se/mikrobiologi-laboratorieanalyser/mikrobiologisk-beredskap-247-diagnostik/sakerhetslaboratorierna/p4-laboratoriet/] Accessed 19 January 2021
[3] United Nations Office at Geneva. "Available Confidence Building Measures Reports". [https://bwc-ecbm.unog.ch/state/sweden] Accessed 19 January 2021
[4] Government of Sweden. 2020. "2020 CBM Report of Sweden to the United Nations Office for Disarmament Affairs covering data for 2019". [https://bwc-ecbm.unog.ch/system/files/form-pdf/bwc_cbm_2020_sweden.pdf] Accessed 19 January 2021
[5] Swedish Defence Research Agency (FOI). "CBRN Defence and Security". [https://www.foi.se/en/foi/about-foi/organization/cbrn-defence-and-security.html] Accessed 19 January 2021
[6] National Veterinary Institute (SVA). "Homepage". [https://www.sva.se/en] Accessed 19 January 2021
[7] VERTIC. 2020. "Sweden". [https://www.vertic.org/programmes/biological-weapons-and-materials/bwc-legislation-database/s/] Accessed 19 January 2021.

1.3.1b

Does the country have in place legislation and/or regulations related to biosecurity which address requirements such as physical containment, operation practices, failure reporting systems, and/or cybersecurity of facilities in which especially dangerous pathogens and toxins are stored or processed?

Yes = 1 , No = 0

Current Year Score: 1

Sweden has regulations that address requirements such as physical containment, operation practices of facilities in which especially dangerous pathogens and toxins are stored or processed. As a member of the European Committee for Standardization, Sweden has adopted CEN 15793 on laboratory bio-risk management. [1] The standard was developed by the American Biological Safety Association, European BioSafety Association, and National Veterinary Institute. It establishes the necessary requirements to control risks for the handling, storage and terminal storage for biological agents and toxins in laboratories and other facilities. The Public Health Agency (PHA) outlines requirements for containment measures for laboratories by containment levels, covering physical location, signage, communication, pressurization, access and other

factors. The PHA also implements controls for responsibility, appropriate containment, limited access, information protection and inventory. [2,3,4] Sweden's legislations refer to biosecurity as "bioprotection", which includes "effective bioprotection and protection of laboratory assets is based on a clearly defined responsibility", "delimitation against unauthorized persons" at facilities with dangerous pathogens and other biosecurity functions, restricted access granting procedures to "prevent improper access and misuse of an infectious agent", "traceability and inventory" of biological materials, protection of sensitive information such as "lists of existing biological materials, including storage and quantity", and "protection plan to be able to handle incidents that may occur in connection with transport" at the local, national, and international levels. [2] The government of Sweden submits an annual Confidence Building Measures report to the United Nations Office for Disarmament Affairs. [5] The reports confirm that Sweden has implemented legislations, regulations and other measures that are in accordance with the latest "WHO Laboratory Biosecurity Guidance or equivalent national or international guidance." [5] Websites for the Board of Agriculture, Ministry of Defence, Ministry of Education and Research and VERTIC do not have additional information on biosecurity. [6,7,8,9]

[1] European Committee for Standardization. 2012. "CWA 16393". [ftp://ftp.cen.eu/CEN/Sectors/List/ICT/Workshops/CWA%2016393.pdf] Accessed 19 January 2021
[2] Public Health Agency. 2021. "Bioskydd". [https://www.folkhalsomyndigheten.se/mikrobiologi-laboratorieanalyser/biosakerhet-och-bioskydd/bioskydd/] Accessed 19 January 2021
[3] Public Health Agency. 2020. "P3-laboratoriet". [https://www.folkhalsomyndigheten.se/mikrobiologi-laboratorieanalyser/mikrobiologisk-beredskap-247-diagnostik/sakerhetslaboratorierna/p3-laboratoriet/] Accessed 19 January 2021
[4] Public Health Agency. 2020. "P4-laboratoriet vid Folkhälsomyndigheten". [https://www.folkhalsomyndigheten.se/mikrobiologi-laboratorieanalyser/mikrobiologisk-beredskap-247-diagnostik/sakerhetslaboratorierna/p4-laboratoriet/] Accessed 19 January 2021
[5] United Nations Office at Geneva. "Available Confidence Building Measures Reports". [https://bwc-ecbm.unog.ch/state/sweden] Accessed 19 January 2021
[6] Board of Agriculture. "Jordsbrukverket". [http://www.jordbruksverket.se/] Accessed 19 January 2021
[7] Ministry of Defence. "Ministry of Defence". [https://www.government.se/government-of-sweden/ministry-of-defence/] Accessed 19 January 2021
[8] Ministry of Education and Research. Ministry of Education and Research. [https://www.government.se/government-of-sweden/ministry-of-education-and-research/] Accessed 19 January 2021
[9] VERTIC. 2020. "Sweden". [https://www.vertic.org/programmes/biological-weapons-and-materials/bwc-legislation-database/s/] Accessed 19 January 2021.

1.3.1c

Is there an established agency (or agencies) responsible for the enforcement of biosecurity legislation and regulations?
Yes = 1 , No = 0

Current Year Score: 1

There are established agencies responsible for the enforcement of biosecurity legislation and regulations. In Sweden, the responsibility to ensure biosecurity is not centralised under one agency, but rather shared between the Work Environment Agency, the Public Health Agency and the Swedish Civil Contingencies Agency (MSB). The Work Environment Authority (SWEA, "Arbetsmiljöverket") has formulated rules concerning biosecurity and biosafety in the Regulation Systematic Work Environment Work, respectively, Microbiological Occupational Safety Hazards - Infection, Toxin Impact, Sensitivity. [1] The Public Health Agency of Sweden (PHA, "Folkhälsomyndigheten") has developed an internal biosecurity program that aims to reduce biological hazards in the country, and it is responsible for raising awareness and providing guidance on the application of CWA 15793, the international standard for laboratory biorisk management. [1,2] The Swedish Civil Contingencies Agency

(MSB) is the competent authority for the transport of dangerous goods by road and rail in Sweden. The MSB maintains an overview of various risks and is responsible for overseeing the domestic transport of hazardous substances. [3] MSB follows international standards set by the United Nations and European Union. [4] The government of Sweden submits an annual Confidence Building Measures report to the United Nations Office for Disarmament Affairs. [5] The reports confirm that Sweden has implemented legislation, regulations and other measures that are in accordance with the latest "WHO Laboratory Biosecurity Guidance or equivalent national or international guidance." The reports do not identify an agency (or agencies) responsible for biosecurity. [5] There is no additional information from the VERTIC database. [6]

[1] Public Health Agency of Sweden. January 2021. "Om biosäkerhet och bioskydd". [https://www.folkhalsomyndigheten.se/mikrobiologi-laboratorieanalyser/biosakerhet-och-bioskydd/] Accessed 19 January 2021
[2] Public Health Agency of Sweden. June 2018. "Biorisk management". [https://www.folkhalsomyndigheten.se/the-public-health-agency-of-sweden/microbiology-and-diagnostics/biorisk-management/] Accessed 19 January 2021
[3] Swedish Civil Contingencies Agency. "Farligt gods". [https://www.msb.se/sv/amnesomraden/skydd-mot-olyckor-och-farliga-amnen/farligt-gods/] Accessed 19 January 2021
[4] Swedish Civil Contingencies Agency. "Internationellt regelarbete". [https://www.msb.se/sv/Forebyggande/Transport-av-farligt-gods/Internationellt-regelarbete/]
[5] United Nations Office at Geneva. "Available Confidence Building Measures Reports". [https://bwc-ecbm.unog.ch/state/sweden] Accessed 21 May 2019
[6] VERTIC. 2020. "Sweden". [https://www.vertic.org/programmes/biological-weapons-and-materials/bwc-legislation-database/s/] Accessed 19 January 2021.

1.3.1d

Is there public evidence that shows that the country has taken action to consolidate its inventories of especially dangerous pathogens and toxins into a minimum number of facilities?

Yes = 1 , No = 0

Current Year Score: 0

There is no public evidence available to show explicitly that Sweden has taken action to consolidate its inventories of especially dangerous pathogens and toxins into a minimum number of facilities. The Public Health Agency of Sweden (PHA, "Folkhälsomyndigheten") has developed an internal biosecurity program that aims to reduce biological hazards in the country and it is responsible for raising awareness and providing guidance on the application of CWA 15793, the international standard for laboratory biorisk management. [1,2] However, neither the PHA nor CWA 15793 explicitly state that the goal of biorisk management is to consolidate inventory of dangerous pathogens into a minimum number of facilities. [1,2] The websites for the Swedish Defence Research Agency, Swedish Board of Agriculture and the Swedish Armed Forces do not have public information about biosecurity regulations and requirement. [3,4,5] The government of Sweden submits an annual Confidence Building Measures report to the United Nations Office for Disarmament Affairs. [6] The reports confirm that Sweden has implemented legislation, regulations and other measures that are in accordance with the latest "WHO Laboratory Biosecurity Guidance or equivalent national or international guidance." However, the reports do not specifically confirm that Sweden has taken action to consolidate its inventories of especially dangerous pathogens and toxins into a minimum number of facilities. [6] There is no additional information from the VERTIC database. [7]

[1] Public Health Agency of Sweden. January 2021. "Om biosäkerhet och bioskydd". [https://www.folkhalsomyndigheten.se/mikrobiologi-laboratorieanalyser/biosakerhet-och-bioskydd/] Accessed 19 January 2021
[2] Public Health Agency of Sweden. June 2018. "Biorisk management". [https://www.folkhalsomyndigheten.se/the-public-

health-agency-of-sweden/microbiology-and-diagnostics/biorisk-management/] Accessed 19 January 2021
[3] Swedish Defence Research Agency. "CBRN issues" [https://www.foi.se/en/foi/research/cbrn-issues.html] Accessed 19 January 2021
[4] Swedish Board of Agriculture. "Miljö och klimat". [https://jordbruksverket.se/jordbruket-miljon-och-klimatet] Accessed 19 January 2021
[5] Swedish Armed Forces. "Search - Biosecurity". [https://www.forsvarsmakten.se/en/search/#!/all?query=biosecurity] Accessed 19 January 2021
[6] United Nations Office at Geneva. "Available Confidence Building Measures Reports". [https://bwc-ecbm.unog.ch/state/sweden] Accessed 19 January 2021
[7] VERTIC. 2020. "Sweden". [https://www.vertic.org/programmes/biological-weapons-and-materials/bwc-legislation-database/s/] Accessed 19 January 2021.

1.3.1e

Is there public evidence of in-country capacity to conduct Polymerase Chain Reaction (PCR)–based diagnostic testing for anthrax and/or Ebola, which would preclude culturing a live pathogen?

Yes = 1 , No = 0

Current Year Score: 1

In Sweden, there is public evidence of in-country capacity to conduct Polymerase Chain Reaction (PCR)-based diagnostic testing for Ebola and anthrax. The Public Health Agency (PHA) has a webpage on the Ebola virus and states that it uses PCR filovirus to analyse Ebola. [1] The PHA also has a webpage for anthrax (Bacillus anthracis) that states the use of real-time PCR for testing. [2]

[1] Public Health Agency. May 2018. "Sjukdomsinformation om ebolavirusinfektion". [https://www.folkhalsomyndigheten.se/smittskydd-beredskap/smittsamma-sjukdomar/ebola/] Accessed 19 January 2021
[2] Public Health Agency. November 2020. "Bacillus anthracis". [https://www.folkhalsomyndigheten.se/mikrobiologi-laboratorieanalyser/laboratorieanalyser-och-tjanster/analyskatalog/odling/bacillus-anthracis-/] Accessed 19 January 2021

1.3.2 Biosecurity training and practices

1.3.2a

Does the country require biosecurity training, using a standardized, required approach, such as through a common curriculum or a trainthe-trainer program, for personnel working in facilities housing or working with especially dangerous pathogens, toxins, or biological materials with pandemic potential?

Yes = 1 , No = 0

Current Year Score: 1

Sweden requires biosecurity training, using a standardized, required approach, such as through a common curriculum or a train-the-trainer program, for personnel working in facilities housing or working with especially dangerous pathogens, toxins, or biological materials with pandemic potential. The Work Environment Authority (SWEA, "Arbetsmiljöverket") has formulated rules concerning biosecurity and biosafety in the Regulation Systematic Work Environment Work, respectively, Microbiological Occupational Safety Hazards - Infection, Toxin Impact, Sensitivity. [1] Employees that work in BSL-3 and BSL-4 laboratories undergo training in biosecurity training as well as practical training in the safety laboratory. [2,3] The European Committee for Standardization (CEN) standards on laboratory biorisk management, which Sweden has adopted, mandate that a "comprehensive proficiency programme in biorisk management" should exist. The standards state that organizations

"should detail how their training programmes are organized, monitored and evaluated" and "should define the different types of training they will require for different types of work", which indicates that standardization is required. [4] Websites for the Board of Agriculture, Ministry of Defence and Ministry of Education and Research do not have additional information on biosecurity training. [5,6,7] The government of Sweden submits an annual Confidence Building Measures report to the United Nations Office for Disarmament Affairs. [8] The reports confirm that Sweden has implemented legislation, regulations and other measures that are in accordance with "WHO Laboratory Biosecurity Guidance or equivalent national or international guidance." However, the reports do not specifically confirm that Sweden requires standardized biosecurity training for personnel in facilities with dangerous pathogens, toxins od biological materials with pandemic potential. [8] There is no additional information from the VERTIC database. [9]

[1] Public Health Agency of Sweden. January 2021. "Om biosäkerhet och bioskydd". [https://www.folkhalsomyndigheten.se/mikrobiologi-laboratorieanalyser/biosakerhet-och-bioskydd/] Accessed 19 January 2021
[2] Public Health Agency of Sweden. November 2020. "P4-laboratoriet vid Folkhälsomyndigheten". [https://www.folkhalsomyndigheten.se/mikrobiologi-laboratorieanalyser/mikrobiologisk-beredskap-247-diagnostik/sakerhetslaboratorierna/p4-laboratoriet/] Accessed 19 January 2021
[3] Public Health Agency of Sweden. 2018. "Arbetsmiljöverkets föreskrifter om Smittrisker (AFS 2018:4)". [https://www.av.se/arbetsmiljoarbete-och-inspektioner/publikationer/foreskrifter/smittrisker-afs-20184/] Accessed 19 January 2021
[4] European Committee for Standardization. 2012. "CWA 16393". [https://www.en-standard.eu/une-cwa-16393-2014-laboratory-biorisk-management-guidelines-for-the-implementation-of-cwa-15793-2008/] Accessed 19 January 2021
[5] Board of Agriculture. "Jordsbrukverket". [http://www.jordbruksverket.se/] Accessed 19 January 2021
[6] Ministry of Defence. "Ministry of Defence". [https://www.government.se/government-of-sweden/ministry-of-defence/] Accessed 19 January 2021
[7] Ministry of Education and Research. Ministry of Education and Research. [https://www.government.se/government-of-sweden/ministry-of-education-and-research/] Accessed 19 Janary 2021
[8] United Nations Office at Geneva. "Available Confidence Building Measures Reports". [https://bwc-ecbm.unog.ch/state/sweden] Accessed 19 January 2021
[9] VERTIC. 2020. "Sweden". [https://www.vertic.org/programmes/biological-weapons-and-materials/bwc-legislation-database/s/] Accessed 19 January 2021.

1.3.3 Personnel vetting: regulating access to sensitive locations

1.3.3a

Do regulations or licensing conditions specify that security and other personnel with access to especially dangerous pathogens, toxins, or biological materials with pandemic potential are subject to the following checks: drug testing, background checks, and psychological or mental fitness checks?

Personnel are subject to all three of these checks = 3, Personnel are subject to two of these checks = 2, Personnel are subject to one of these checks = 1, Personnel are not subject to any of these checks = 0

Current Year Score: 1

There is public evidence that regulations or licensing conditions specify that personnel with access to especially dangerous pathogens, toxins, or biological materials with pandemic potential are subject to background checks, however drug testing, psychological or mental fitness checks are not explicitly required by law. According to the Occupational Safety and Health Administration's Regulations on Infectious Diseases (Arbetsmiljöverkets föreskrifter om Smittrisker (AFS 2018:4)), employers conduct a basic medical test, but the occupational safety law does not specifically mention drug testing, background checks,

and psychological or mental fitness checks. [1] The Security Act (1996:627) and the Security Ordinance (1996:633) are broad regulations that cover security personnel or persons with access to secret information, which include sensitive research. The Act and Ordinance specify that background checks are required for security and that health assessments may also be conducted. In such instances, the person subject to a background investigation must agree to have their medical records released. This implies that drug testing and psychological or mental health checks may be part of the security clearance process, but it is not specified per se. [2,3] The websites for the Swedish Defence Research Agency, Swedish Board of Agriculture, the Public Health Agency and the Swedish Armed Forces do not have public information about additional required personnel checks. [4,5,6,7] The government of Sweden submits an annual Confidence Building Measures report to the United Nations Office for Disarmament Affairs. [8] The reports confirm that Sweden has implemented legislation, regulations and other measures that are in accordance with the latest "WHO Laboratory Biosecurity Guidance or equivalent national or international guidance." However, the reports do not specifically confirm that Sweden requires that security and other personnel with access to especially dangerous pathogens, toxins, or biological materials with pandemic potential are subject to the following checks: drug testing, background checks, and psychological or mental fitness checks. [8] There is no information from the VERTIC database. [9]

[1] Public Health Agency of Sweden. 2018. "Arbetsmiljöverkets föreskrifter om Smittrisker (AFS 2018:4)". [https://www.av.se/arbetsmiljoarbete-och-inspektioner/publikationer/foreskrifter/smittrisker-afs-20184/] Accessed 19 January 2021
[2] Government of Sweden. "Säkerhetsskyddslag (1996:627)". [http://www.riksdagen.se/sv/Dokument-Lagar/Lagar/Svenskforfattningssamling/Sakerhetsskyddslag-1996627_sfs-1996-627/] Accessed 19 January 2021
[3] Government of Sweden. Säkerhetsskyddsförordning (1996:633) [http://www.riksdagen.se/sv/Dokument-Lagar/Lagar/Svenskforfattningssamling/Sakerhetsskyddsforordning-199_sfs-1996-633/] Accessed 19 January 2021
[4] Swedish Defence Research Agency. "CBRN issues" [https://www.foi.se/en/foi/research/cbrn-issues.html] Accessed 19 January 2021
[5] Swedish Board of Agriculture. "Miljö och klimat". [https://jordbruksverket.se/jordbruket-miljon-och-klimatet] Accessed 19 January 2021
[6] Public Health Agency. "Smittskydd & beredskap". [https://www.folkhalsomyndigheten.se/smittskydd-beredskap/] Accessed 19 January 2021
[7] Swedish Armed Forces. "Search - Biosecurity". [https://www.forsvarsmakten.se/en/search/#!/all?query=biosecurity] Accessed 19 January 2021
[8] United Nations Office at Geneva. "Available Confidence Building Measures Reports". [https://bwc-ecbm.unog.ch/state/sweden] Accessed 19 January 2021
[9] VERTIC. 2020. "Sweden". [https://www.vertic.org/programmes/biological-weapons-and-materials/bwc-legislation-database/s/] Accessed 19 January 2021.

1.3.4 Transportation security

1.3.4a

Does the country have publicly available information on national regulations on the safe and secure transport of infectious substances (specifically including Categories A and B)?

Yes = 1 , No = 0

Current Year Score: 1

Sweden has publicly available information on national regulations on the safe and secure transport of infectious substances (Categories A and B). The Swedish Civil Contingencies Agency (MSB, "Myndigheten för samhällsskydd och beredskap") is the department of government that is responsible for the safe transport of dangerous goods by road and rail in Sweden. [1] The

regulations on the transport of dangerous goods ("MSBFS 2020:9 föreskrifter om transport av farligt gods på väg och i terräng (ADR-S 2021)") were updated in 2020 and will go into effect in 2021. The rules cover Category A and B substances. [2] The government of Sweden submits an annual Confidence Building Measures report to the United Nations Office for Disarmament Affairs. [3] The reports confirm that Sweden has implemented legislation, regulations and other measures that are in accordance with the latest "WHO Laboratory Biosecurity Guidance or equivalent national or international guidance." However, the reports do not describe national regulations on the safe and secure transport of infectious substances (Categories A and B). [3] The is no additional information from the VERTIC database. [4]

[1] Swedish Civil Contingencies Agency. "Transport of dangerous goods by road and rail". [https://www.msb.se/en/Prevention/Transport-of-dangerous-goods/] Accessed 19 January 2021
[2] Swedish Civil Contingencies Agency. December 2020. "MSBFS 2020:9 föreskrifter om transport av farligt gods på väg och i terräng (ADR-S 2021)". [https://www.msb.se/sv/Om-MSB/Lag-och-ratt/Gallande-regler/Transport-av-farligt-gods/MSBFS-20185/] Accessed 19 January 2021
[3] United Nations Office at Geneva. "Available Confidence Building Measures Reports". [https://bwc-ecbm.unog.ch/state/sweden] Accessed 19 January 2021
[4] VERTIC. 2020. "Sweden". [https://www.vertic.org/programmes/biological-weapons-and-materials/bwc-legislation-database/s/] Accessed 19 January 2021.

1.3.5 Cross-border transfer and end-user screening

1.3.5a

Is there legislation and/or regulations in place to oversee the cross-border transfer and end-user screening of especially dangerous pathogens, toxins, and pathogens with pandemic potential?

Yes = 1 , No = 0

Current Year Score: 1

There is evidence of legislation in place oversee the cross-border transfer and end-user screening of especially dangerous pathogens, toxins, and pathogens. End-user screening is mandated in Sweden by the EU's Regulation No 428/2009 Setting up a Community Regime for the Control of Exports, Transfer, Brokering and Transit of Dual-Use Items. According to the regulations, the term "dual-use" includes 91 pathogens and toxins: 32 human viruses, 17 animal viruses, 4 rickettsiae, 15 bacteria, 19 toxins, 2 fungi and 2 mycoplasmas [1]. Among others, this includes the pathogens and toxins associated with plague, cholera, encephalitis, Ebola, dengue fever, anthrax, salmonellosis, brucellosis, shigellosis, yellow fever and botulism. However, the list omits pathogens and toxins associated with some major infectious diseases, such as influenza and tuberculosis. The regulation states that export authorization is subject to identification of the end-user and intended use [1]. It further states that dual-use items may not be exported when the exporter is informed by member state authorities that they are intended for the production of weapons of mass destruction, or for military use more broadly where the destination country is subject to an arms embargo imposed by the Organisation for Security and Co-operation in Europe (OSCE) or United Nations Security Council [1]. Regulations issued by the European Council are legally binding legislative acts in all EU member states [2]. There is no additional information from the VERTIC database. [3]

[1] European Council. 2009. Council Regulation (EC) No 428/2009 of 5 May 2009 setting up a Community regime for the control of exports, transfer, brokering and transit of dual-use items. EUR-Lex. [https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A02009R0428-20191231]. Accessed 19 January 2021.
[2] European Union. "Regulations, Directives and other acts." Europa.eu. [https://europa.eu/european-union/law/legal-acts_en]. Accessed 19 January 2021
[3] VERTIC. 2020. "Sweden". [https://www.vertic.org/programmes/biological-weapons-and-materials/bwc-legislation-

database/s/] Accessed 19 January 2021.

1.4 BIOSAFETY

1.4.1 Whole-of-government biosafety systems

1.4.1a

Does the country have in place national biosafety legislation and/or regulations?

Yes = 1 , No = 0

Current Year Score: 1

Sweden has national biosafety regulations. The Occupational Safety and Health Administration's Regulations on Infectious Diseases (Arbetsmiljöverkets föreskrifter om Smittrisker (AFS 2018:4)) is the national legislation that describes biosafety measures in laboratories. The biosafety measures differ by the biosafety level (BSL) designation of a laboratory. BSL-3 and BSL-4 labs have more biosafety requirements than BSL-1 and BSL-2 labs. [1] The measures include: Protective measures in laboratories; an action plan in the event of an accident with release of infectious substances; Protective measures for all activities when working with infectious agents; and Protection levels for work with infectious agents in industrial processes, among others. [1] Websites for the Board of Agriculture, Ministry of Defence and Ministry of Education and Research do not have additional information on biosafety. [2,3,4] The government of Sweden submits an annual Confidence Building Measures report to the United Nations Office for Disarmament Affairs. [5] The reports confirm that Sweden has implemented legislation, regulations and other measures that are in accordance with the latest "WHO Laboratory Biosafety Manual or equivalent national or international guidance." [5] The VERTIC database does not have additional information about this. [6]

[1] Public Health Agency of Sweden. 2018. "Arbetsmiljöverkets föreskrifter om Smittrisker (AFS 2018:4)". [https://www.av.se/arbetsmiljoarbete-och-inspektioner/publikationer/foreskrifter/smittrisker-afs-20184/] Accessed 19 January 2021
[2] Board of Agriculture. "Jordsbrukverket". [http://www.jordbruksverket.se/] Accessed 19 January 2021
[3] Ministry of Defence. "Ministry of Defence". [https://www.government.se/government-of-sweden/ministry-of-defence/] Accessed 19 January 2021
[4] Ministry of Education and Research. Ministry of Education and Research. [https://www.government.se/government-of-sweden/ministry-of-education-and-research/] Accessed 19 January 2021
[5] United Nations Office at Geneva. "Available Confidence Building Measures Reports". [https://bwc-ecbm.unog.ch/state/sweden] Accessed 19 January 2021
[6] VERTIC. 2020. "Sweden". [https://www.vertic.org/programmes/biological-weapons-and-materials/bwc-legislation-database/s/] Accessed 19 January 2021.

1.4.1b

Is there an established agency responsible for the enforcement of biosafety legislation and regulations?

Yes = 1 , No = 0

Current Year Score: 1

There is an established agency in Sweden that is responsible for the enforcement of biosafety legislation and regulations. The Work Environment Authority (SWEA, "Arbetsmiljöverket") has formulated rules concerning biosafety and biosecurity in the Regulation Systematic Work Environment Work, respectively, Microbiological Occupational Safety Hazards - Infection, Toxin

Impact, Sensitivity. [1,2] The Public Health Agency of Sweden (PHA, "Folkhälsomyndigheten") is responsible to reduce biological hazards in the country and provides guidance on the application of CWA 15793, the international standard for laboratory biorisk management. [1,3] SWEA is also responsible for the implementation of the EU Directive 2000/54/EC on the protection of workers from risks related to exposure to biological agents at work and EU Directive 2009/41/EC on the contained use of genetically modified micro-organisms (GMM). [4] The government of Sweden submits an annual Confidence Building Measures report to the United Nations Office for Disarmament Affairs. [5] The reports confirm that Sweden has implemented legislation, regulations and other measures that are in accordance with the latest "WHO Laboratory Biosafety Manual or equivalent national or international guidance." However, the reports do not identify the responsible agency (or agencies). [5] The VERTIC database does not publish additional information. [6]

[1] Public Health Agency of Sweden. January 2021. "Om biosäkerhet och bioskydd". [https://www.folkhalsomyndigheten.se/mikrobiologi-laboratorieanalyser/biosakerhet-och-bioskydd/] Accessed 19 January 2021
[2] Public Health Agency of Sweden. December 2020. "Biosäkerhet". [https://www.folkhalsomyndigheten.se/mikrobiologi-laboratorieanalyser/biosakerhet-och-bioskydd/biosakerhet/] Accessed 19 January 2021
[3] Public Health Agency of Sweden. June 2018. "Biorisk management". [https://www.folkhalsomyndigheten.se/the-public-health-agency-of-sweden/microbiology-and-diagnostics/biorisk-management/] Accessed 19 January 2021
[4] Swedish Work Environment Authority. 2005. "Microbiological work environment risks - infection, toxigenic effect, hypersensitivity". [http://www.bmc.uu.se/digitalAssets/306/c_306445-l_3-k_afs2005_1eng.pdf] Accessed 19 January 2021
[5] United Nations Office at Geneva. "Available Confidence Building Measures Reports". [https://bwc-ecbm.unog.ch/state/sweden] Accessed 19 January 2021
[6] VERTIC. 2020. "Sweden". [https://www.vertic.org/programmes/biological-weapons-and-materials/bwc-legislation-database/s/] Accessed 19 January 2021.

1.4.2 Biosafety training and practices

1.4.2a

Does the country require biosafety training, using a standardized, required approach, such as through a common curriculum or a trainthe-trainer program, for personnel working in facilities housing or working with especially dangerous pathogens, toxins, or biological materials with pandemic potential?

Yes = 1 , No = 0

Current Year Score: 1

Sweden requires biosafety training, using a standardized, required approach, such as through a common curriculum or a train-the-trainer program, for personnel working in facilities housing or working with especially dangerous pathogens, toxins, or biological materials with pandemic potential. The Occupational Safety and Health Administration's Regulations on Infectious Diseases (Arbetsmiljöverkets föreskrifter om Smittrisker (AFS 2018:4)) is the national legislation that describes biosafety measures in laboratories. The law requires that personnel in labs must receive training. Specifically, the law requires workers to receive training on biosecurity: risk assessment, protection, containment and reporting on "unwanted events internally". Training should happen before personnel begin to work and "repeated regularly." Training should also happen whenever risk or security measures are updated. [1] The website for the Public Health Agency (PHA, "Folkhälsomyndigheten") also states that it has expertise on biosafety and acts as an advisor to other departments of government. PHA "is able to provide education and training in biosafety (biosafety) and in biosecurity (biosecurity) as well as practical training in the safety laboratory."[2] Websites for the Board of Agriculture, Ministry of Defence, the Swedish Defence Research Agency and Ministry of Education and Research do not have additional information on biosafety training. [3,4,5,6] The government of Sweden submits an annual Confidence Building Measures report to the United Nations Office for

Disarmament Affairs. [7] The reports confirm that Sweden has implemented legislation, regulations and other measures that are in accordance with the latest "WHO Laboratory Biosafety Manual or equivalent national or international guidance." However, the reports do not describe any specific biosafety training requirements. [7] The VERTIC database does not have additional information. [8]

[1] Public Health Agency of Sweden. 2018. "Arbetsmiljöverkets föreskrifter om Smittrisker (AFS 2018:4)". [https://www.av.se/arbetsmiljoarbete-och-inspektioner/publikationer/foreskrifter/smittrisker-afs-20184/] Accessed 19 January 2021
[2] Public Health Agency of Sweden. "P4-laboratoriet vid Folkhälsomyndigheten". [https://www.folkhalsomyndigheten.se/mikrobiologi-laboratorieanalyser/mikrobiologisk-beredskap-247-diagnostik/sakerhetslaboratorierna/p4-laboratoriet/] Accessed 19 January 2021
[3] Board of Agriculture. "Jordsbrukverket". [http://www.jordbruksverket.se/] Accessed 19 January 2021
[4] Ministry of Defence. "Ministry of Defence". [https://www.government.se/government-of-sweden/ministry-of-defence/] Accessed 19 January 2021
[5] Swedish Defence Research Agency. "CBRN issues" [https://www.foi.se/en/foi/research/cbrn-issues.html] Accessed 19 January 2021
[6] Ministry of Education and Research. Ministry of Education and Research. [https://www.government.se/government-of-sweden/ministry-of-education-and-research/] Accessed 19 January 2021
[7] United Nations Office at Geneva. "Available Confidence Building Measures Reports". [https://bwc-ecbm.unog.ch/state/sweden] Accessed 19 January 2021
[8] VERTIC. 2020. "Sweden". [https://www.vertic.org/programmes/biological-weapons-and-materials/bwc-legislation-database/s/] Accessed 19 January 2021.

1.5 DUAL-USE RESEARCH AND CULTURE OF RESPONSIBLE SCIENCE

1.5.1 Oversight of research with especially dangerous pathogens, toxins, pathogens with pandemic potential and/or other dual-use research

1.5.1a

Is there publicly available evidence that the country has conducted an assessment to determine whether ongoing research is occurring on especially dangerous pathogens, toxins, pathogens with pandemic potential and/or other dual-use research?
Yes = 1 , No = 0

Current Year Score: 0

There is insufficient evidence to conclude that a coordinated assessment of research on dual-use biological materials has been conducted in Sweden. The Public Health Agency (PHA, "Folkhälsomyndigheten") does not publish any information about assessments of research on especially dangerous pathogens, but it does describe its own capacity to conduct research on these. The PHA runs the only Security Level 4 laboratory in the Nordic region. The PHA conducts research on hematopoietic viruses and other highly pathogenic microorganisms, and is an important part of the national projects on dangerous pathogens and is part of national and European laboratory networks. [1] The PHA also outlines its responsibility for information security and inventory management and follows international protocols set by European directives and the World Health Organization, for example Directive of the European Parliament and of the Council on the protection of workers from risks related to exposure to biological agents at work (2000/54/EC), Directive of the European Parliament and of the Council on the contained use of genetically modified micro-organisms (2009/41/EC), Handbook of applied biosecurity for life science laboratories, Sipri (2009), WHO Biorisk management: Laboratory biosecurity guidance (2006) and WHO Laboratory biosafety manual (2004). [2,3] Websites for the Ministries of Defence, Education and Research, Health and Social

Affairs and the Board of Agriculture do not have additional information on research activities with dangerous pathogens. [4,5,6,7] Sweden's reports to the United Nations Office at Geneva (UNOG) for the Confidence Building Measures, which is a reporting mechanism set by the Biological Weapons Convention, do not provide any further information. [8] The VERTIC database does not have additional information. [9]

[1] Public Health Agency of Sweden. "P4-laboratoriet vid Folkhälsomyndigheten". [https://www.folkhalsomyndigheten.se/mikrobiologi-laboratorieanalyser/mikrobiologisk-beredskap-247-diagnostik/sakerhetslaboratorierna/p4-laboratoriet/] Accessed 19 January 2021
[2] Public Health Agency of Sweden. "Bioskydd". [https://www.folkhalsomyndigheten.se/mikrobiologi-laboratorieanalyser/biosakerhet-och-bioskydd/bioskydd/] Accessed 19 January 2021
[3] Public Health Agency of Sweden. "Om biosäkerhet och bioskydd". [https://www.folkhalsomyndigheten.se/mikrobiologi-laboratorieanalyser/biosakerhet-och-bioskydd/] Accessed 19 January 2021
[4] Ministry of Defence. "Ministry of Defence". [https://www.government.se/government-of-sweden/ministry-of-defence/] Accessed 19 January 2021
[5] Ministry of Education and Research. "Ministry of Education and Research". [https://www.government.se/government-of-sweden/ministry-of-education-and-research/] Accessed 19 January 2021
[6] Ministry of Health and Social Affairs. "Ministry of Health and Social Affairs". [https://www.government.se/government-of-sweden/ministry-of-health-and-social-affairs/] Accessed 19 January 2021
[7] Board of Agriculture. "Om Jordbruksverket". [https://jordbruksverket.se/om-jordbruksverket] Accessed 19 January 2021
[8] United Nations Office at Geneva. "Available Confidence Building Measures Reports". [https://bwc-ecbm.unog.ch/state/sweden] Accessed 21 May 2019
[9] VERTIC. 2020. "Sweden". [https://www.vertic.org/programmes/biological-weapons-and-materials/bwc-legislation-database/s/] Accessed 19 January 2021.

1.5.1b

Is there legislation and/or regulation requiring oversight of research with especially dangerous pathogens, toxins, pathogens with pandemic potential and/or other dual-use research?

Yes = 1 , No = 0

Current Year Score: 1

In Sweden, there is a national policy requiring oversight of dual use research, such as research with especially dangerous pathogens, toxins, and/or pathogens with pandemic potential. As member of the European Union, Sweden must comply with EU dual use controls, which are described in EC Regulation 428/2009, the UN Security Council Resolution 1540, The Nuclear Non-Proliferation Treaty, the Chemical Weapons Convention and the Biological Weapons Convention. [1] The governing regulation in Sweden is the of Law on control over products with dual-use and over technical assistance (SFS 2000:1064, "Lag (2000:1064) om kontroll av produkter med dubbla användningsområden och av tekniskt bistånd") that was most recently updated in 2018. The Act concerns the control of dual-use items and the control of technical assistance. It contains additional provisions to European Council Regulation (EC) No 428/2009 of 5 May 2009 establishing a Community regime for the control of exports, transfers, intermediation and transit of dual-use items (recast). If any potentially serious threats arise, authorities and universities are required to alert the coordinating government authority (e.g. Public Health Agency, National Board of Health and Welfare) about the threat [2] The government of Sweden submits an annual Confidence Building Measures report to the United Nations Office for Disarmament Affairs. [3] The reports confirm that Sweden has implemented legislation, regulations and other measures that cover biological agents, or toxins, weapons, equipment as specified in the Convention on the Prohibition of the Development, Production and Stockpiling of Bacteriological (Biological) and Toxin Weapons and their Destruction, 10 April 1972. [3] There is no additional information from the VERTIC database. [4]

[1] European Commission. "Dual-use trade controls". [http://ec.europa.eu/trade/import-and-export-rules/export-from-eu/dual-use-controls/] Accessed 19 January 2021
[2] Government of Sweden. 2018. "Lag (2000:1064) om kontroll av produkter med dubbla användningsområden och av tekniskt bistånd". [https://www.riksdagen.se/sv/dokument-lagar/dokument/svensk-forfattningssamling/lag-20001064-om-kontroll-av-produkter-med_sfs-2000-1064] Accessed 19 January 2021
[3] United Nations Office at Geneva. "Available Confidence Building Measures Reports". [https://bwc-ecbm.unog.ch/state/sweden] Accessed 21 May 2019
[4] Government of Sweden. April 2019. "2019 CBM Report of Sweden to the United Nations Office for Disarmament Affairs covering data for 2018". [https://bwc-ecbm.unog.ch/sweden/bwccbm2019sweden] Accessed 21 May 2019
[5] Government of Sweden. April 2018. "2018 CBM Report of Sweden to the United Nations Office for Disarmament Affairs covering data for 2017". [https://bwc-ecbm.unog.ch/sweden/bwccbm2018sweden] Accessed 21 May 2019
[6] Government of Sweden. April 2017. "2017 CBM Report of Sweden to the United Nations Office for Disarmament Affairs covering data for 2016". [https://bwc-ecbm.unog.ch/sweden/bwccbm2017sweden] Accessed 21 May 2019

1.5.1c

Is there an agency responsible for oversight of research with especially dangerous pathogens, toxins, pathogens with pandemic potential and/or other dual-use research?

Yes = 1 , No = 0

Current Year Score: 1

In Sweden, there is an agency responsible for oversight of research with especially dangerous pathogens, pathogens with pandemic potential, and other dual use research. The entity responsible, by law, is the Inspectorate for Strategic Products. The primary regulation is the of Law on control over products with dual-use and over technical assistance (SFS 2000:1064, "Lag (2000:1064) om kontroll av produkter med dubbla användningsområden och av tekniskt bistånd") that was most recently updated in 2018. Section 15 of the Act states, "Supervision of compliance with the provisions of Council Regulation (EC) No 428/2009, this law or regulation issued pursuant to the Act shall be exercised by the Inspectorate for Strategic Products ("myndighet som regeringen bestämmer (tillsynsmyndigheten)"). [1] The government of Sweden submits an annual Confidence Building Measures report to the United Nations Office for Disarmament Affairs. [2] The reports cover government agencies and facilities that research and handle dangerous pathogens and toxins. [2] The VERTIC database does not have additional information. [3]

[1] Government of Sweden. 2018. "Lag (2000:1064) om kontroll av produkter med dubbla användningsområden och av tekniskt bistånd". [https://www.riksdagen.se/sv/dokument-lagar/dokument/svensk-forfattningssamling/lag-20001064-om-kontroll-av-produkter-med_sfs-2000-1064] Accessed 19 January 2021
[2] United Nations Office at Geneva. "Available Confidence Building Measures Reports". [https://bwc-ecbm.unog.ch/state/sweden] Accessed 19 January 2021
[3] VERTIC. 2020. "Sweden". [https://www.vertic.org/programmes/biological-weapons-and-materials/bwc-legislation-database/s/] Accessed 19 January 2021.

1.5.2 Screening guidance for providers of genetic material

1.5.2a

Is there legislation and/or regulation requiring the screening of synthesized DNA (deoxyribonucleic acid) against lists of known pathogens and toxins before it is sold?

Yes = 1 , No = 0

Current Year Score: 0

There is no public evidence of a national legislation or policy specifically addressing the screening of synthesized DNA before it is sold. In Sweden, there is evidence national policy requiring the screening of synthesized DNA, and it applies to the identification of genetically modified organisms (GMOs). Directive 2001/18/EC of the European Parliament and of the Council of 12 March 2001 on the deliberate release into the environment of genetically modified organisms and repealing Council Directive 90/220/EEC - Commission Declaration states, "No GMOs, as or in products, intended for deliberate release are to be considered for placing on the market without first having been subjected to satisfactory field testing at the research and development stage in ecosystems which could be affected by their use." [1] In Sweden, the Swedish Gene Technology Advisory Board (Gentekniknämnden) is responsible for promoting ethically justifiable and safe use of genetic engineering so that human and animal health and the environment are protected, but it does not have public documents about DNA screening. [2] Websites for the Public Health Authority, Board of Agriculture, Ministry of Defence and Ministry of Education and Research do not have additional information. [3,4,5,6] The government of Sweden submits an annual Confidence Building Measures report to the United Nations Office for Disarmament Affairs. [7] The reports confirm that Sweden has implemented legislation, regulations and other measures that cover imports and exports of micro-organisms and toxins, but there is no additional information about screening synthesized DNA before it is sold. [7] The VERTIC database does not have additional information. [8]

[1] European Commission. "Directive 2001/18/EC of the European Parliament and of the Council of 12 March 2001 on the deliberate release into the environment of genetically modified organisms and repealing Council Directive 90/220/EEC - Commission Declaration". [https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:32001L0018] Accessed 19 January 2021
[2] Swedish Gene Technology Advisory Board. "Om nämnden". [https://www.genteknik.se/om-gentekniknamnden/] Accessed 19 January 2021
[3] Board of Agriculture. "Jordsbrukverket". [http://www.jordbruksverket.se/] Accessed 19 January 2021
[4] Ministry of Defence. "Ministry of Defence". [https://www.government.se/government-of-sweden/ministry-of-defence/] Accessed 19 January 2021
[5] Ministry of Education and Research. Ministry of Education and Research. [https://www.government.se/government-of-sweden/ministry-of-education-and-research/] Accessed 19 January 2021
[6] Public Health Authority. "Smittskydd & beredskap". [https://www.folkhalsomyndigheten.se/smittskydd-beredskap/] Accessed 19 January 2021
[7] United Nations Office at Geneva. "Available Confidence Building Measures Reports". [https://bwc-ecbm.unog.ch/state/sweden] Accessed 21 May 2019
[8] VERTIC. 2020. "Sweden". [https://www.vertic.org/programmes/biological-weapons-and-materials/bwc-legislation-database/s/] Accessed 19 January 2021.

1.6 IMMUNIZATION

1.6.1 Vaccination rates

1.6.1a

Immunization rate (measles/MCV2)

Immunization rate (measles/MCV2), 95% or greater = 2, 80-94.9% = 1, Less than 80%, or no data = 0

Current Year Score: 2

2019

World Health Organization

1.6.1b

Are official foot-and-mouth disease (FMD) vaccination figures for livestock publicly available through the OIE database?

Yes = 1 , No = 0

Current Year Score: 1

2020

OIE WAHIS database

Category 2: Early detection and reporting for epidemics of potential international concern

2.1 LABORATORY SYSTEMS STRENGTH AND QUALITY

2.1.1 Laboratory testing for detection of priority diseases

2.1.1a

Does the national laboratory system have the capacity to conduct diagnostic tests for at least 5 of the 10 WHO-defined core tests?

Evidence they can conduct 5 of the 10 core tests and these tests are named = 2, Evidence they can conduct 5 of the 10 core tests and the tests are not named = 1, No evidence they can conduct 5 of the 10 core tests = 0

Current Year Score: 2

There is publicly available evidence that the national laboratory system in Sweden has the capacity to conduct diagnostic tests for at least 5 of the 10 WHO-defined core tests. Neither the Public Health Authority of Sweden (PHA, "Folkhälsomyndigheten"), nor the World Health Organization have public information on the 4 core tests that have been defined for Sweden. [1,2] The website of the PHA indicates that Sweden's national laboratory system can conduct polymerase chain reaction (PCR) testing for Influenza A and B; virus isolation for poliovirus; microscopy for mycobacterium tuberculosis (tuberculosis/TB); rapid diagnostic testing (HRP2 / pLDH) for plasmodium spp. (malaria); and bacterial culture for Salmonella enterica. [3,4,5,6,7]. There is no evidence of capacity for serology for HIV, only molecular typing. [8]

[1] Government of Sweden. 2019. "WHO och internationell samordning". [https://www.folkhalsomyndigheten.se/folkhalsoarbete/internationellt-samarbete/who-samarbete/] Accessed 19 January 2021.
[2] Public Health Agency. "Mikrobiologi & laboratorieanalyser". [https://www.folkhalsomyndigheten.se/mikrobiologi-laboratorieanalyser/] Accessed 19 January 2021.
[3] Public Health Authority (Folkhälsomyndigheten). "Influenza virus A and B (PCR)".

[https://www.folkhalsomyndigheten.se/mikrobiologi-laboratorieanalyser/laboratorieanalyser-och-tjanster/analyskatalog/pcr/influensavirus-a-och-b/]. Accessed 19 January 2021.
[4] Public Health Authority (Folkhälsomyndigheten). "Poliovirus".
[https://www.folkhalsomyndigheten.se/globalassets/laboratorieanalys/slim/nrl-09-poliovirus.pdf]. Accessed 19 January 2021.
[5] Public Health Authority (Folkhälsomyndigheten). "Mycobacterium tuberculosis".
[https://www.folkhalsomyndigheten.se/contentassets/12a239af127c47ab9490bee9e0f7c51a/nationella-referenslaboratorium.pdf]. Accessed 19 January 2021.
[6] Public Health Authority (Folkhälsomyndigheten). " Plasmodium spp./Malaria ".
[https://www.folkhalsomyndigheten.se/mikrobiologi-laboratorieanalyser/laboratorieanalyser-och-tjanster/analyskatalog/mikroskopi/plasmodium-spp.malaria-mikroskopi/]. Accessed 19 January 2019.
[7] Public Health Authority (Folkhälsomyndigheten). "Salmonella enterica".
[https://www.folkhalsomyndigheten.se/mikrobiologi-laboratorieanalyser/laboratorieanalyser-och-tjanster/analyskatalog/verifikationserotypning/salmonella-enterica/]. Accessed 19 January 2021.
[8] Public Health Authority (Folkhälsomyndigheten). "HIV-1 (Human Immunodeficiency Virus)".
[https://www.folkhalsomyndigheten.se/mikrobiologi-laboratorieanalyser/laboratorieanalyser-och-tjanster/analyskatalog/molekylar-typning/hiv-1-humant-immunbristvirus/]. Accessed 19 January 2021

2.1.1b

Is there a national plan, strategy or similar document for conducting testing during a public health emergency, which includes considerations for testing for novel pathogens, scaling capacity, and defining goals for testing?

Yes, there is evidence of a plan, and it includes considerations for testing for novel pathogens, scaling capacity, and defining goals for testing = 2, Yes, there is evidence of a plan, but there is insufficient evidence that it includes considerations for testing for novel pathogens, scaling capacity, and defining goals for testing = 1, No evidence of a plan = 0

Current Year Score: 0

There is insufficient evidence that Sweden has a plan or strategy for conducting testing during a public health emergency, which includes considerations for testing for novel pathogens, scaling capacity, and defining goals for testing. Websites for the Public Health Authority, Board of Agriculture, Ministry of Defence and Ministry of Education and Research do not have publicly available strategies about testing for novel pathogens. [1,2,3,4] The Public Health Authority has published reports on pandemic preparedness that outline guidelines for international cooperation, but do not describe testing logistics and scaling capacity in detail. [5] The Public Health Authority has created a website about testing and information tracking. It explains the tests that are available, eligibility for testing and how to access tests in the public health system (www.1177.se). [6] The Public Health Authority explains that the goal for testing is to ensure that people with symptoms over the age of 6 get tested to see if they have an ongoing infection but there is no explicit mention about a public health emergency. [7]

[1] Board of Agriculture. "Jordsbrukverket". [http://www.jordbruksverket.se/] Accessed 19 January 2021
[2] Ministry of Defence. "Ministry of Defence". [https://www.government.se/government-of-sweden/ministry-of-defence/] Accessed 19 January 2021
[3] Ministry of Education and Research. Ministry of Education and Research. [https://www.government.se/government-of-sweden/ministry-of-education-and-research/] Accessed 19 January 2021
[4] Public Health Authority. "Smittskydd & beredskap". [https://www.folkhalsomyndigheten.se/smittskydd-beredskap/] Accessed 19 January 2021
[5] Public Health Authority. "Pandemiberedskap". [https://www.folkhalsomyndigheten.se/smittskydd-beredskap/krisberedskap/pandemiberedskap/] Accessed 19 January 2021
[6] Public Health Authority. "Testning för covid-19", [https://www.folkhalsomyndigheten.se/smittskydd-beredskap/utbrott/aktuella-utbrott/covid-19/testning-och-smittsparning/] Accessed 19 Janary 2021

[7] Public Health Authority. “COVID-19 testing” [https://www.folkhalsomyndigheten.se/the-public-health-agency-of-sweden/communicable-disease-control/covid-19/covid-19-testing/] Accessed May 2021.

2.1.2 Laboratory quality systems

2.1.2a

Is there a national laboratory that serves as a reference facility which is accredited (e.g., International Organization for Standardization [ISO] 15189:2003, U.S. Clinical Laboratory Improvement Amendments [CLIA])?

Yes = 1 , No = 0

Current Year Score: 1

There is a national laboratory that serves as a reference facility that is accredited. Indeed, in order to operate in Sweden, a laboratory must meet requirements set by SWEDAC, which is the national body for technical accreditation in Sweden and uses ISO/IEC 17020:2012, SS-EN ISO/IEC 17025:2018, SS-EN ISO 15189:2012, SS-EN ISO 22870:2016 and country-specific requirements. [1,2] The Public Health Agency, which is the national reference facility, is an accredited laboratory. [1] The Karolinska Institute (KI), one of the national labs that runs several diagnostics tests, does state that is has the ISO 15189 certification. [3]

[1] Public Health Agency of Sweden. "Analyser". [https://www.folkhalsomyndigheten.se/slim/analyser/] Accessed 19 January 2021
[2] SWEDAC. "Laboratoriemedicin". [https://www.swedac.se/amnesomraden/laboratoriemedicin/] Accessed 19 January 2021.
[3] Karolinska Institute. September 2018. "Kvalitetsarbete inom laboratoriedivisionen". [https://www.karolinska.se/for-vardgivare/karolinska-universitetslaboratoriet/om-oss/kul-om-oss-kvalitet/] Accessed 19 January 2021.

2.1.2b

Is there a national laboratory that serves as a reference facility which is subject to external quality assurance review?

Yes = 1 , No = 0

Current Year Score: 1

The national laboratory that serves as a reference facility is subject to external quality assurance (EQA) review. In order to operate in Sweden a laboratory must meet requirements set by SWEDAC, which is the national body for technical accreditation in Sweden. To be accredited, labs must meet accreditation standards, which include SS-EN ISO 15189:2012 for Medical laboratories on requirements for quality and competence. The national reference labs must meet certification requirements in order to operate in the country. [1] ISO 15189 certification requires external quality assurance reviews. [2]

[1] SWEDAC. "Laboratoriemedicin". [https://www.swedac.se/amnesomraden/laboratoriemedicin/] Accessed 19 January 2021.
[2] World Health Organisation. "Content Sheet 10-1: Overview of External Quality Assessment (EQA)". [http://www.who.int/ihr/training/laboratory_quality/10_b_eqa_contents.pdf]. Accessed 19 January 2021

2.2 LABORATORY SUPPLY CHAINS

2.2.1 Specimen referral and transport system

2.2.1a

Is there a nationwide specimen transport system?

Yes = 1 , No = 0

Current Year Score: 1

There is a nationwide specimen transport system in Sweden. The Public Health Agency (PHA, "Folkhälsomyndighetemen") publishes information on the transport of biological specimens in Sweden. All samples for microbiological analysis can be associated with certain risks and are required by law to follow certain packing, labelling and transport guidelines. [1] The transport of highly infectious samples is handled directly by the PHA. Anyone wishing to transport such substances can call the PHA to arrange the service. [1] In addition to the national service that is run by the PHA, Karolinska Institute (KI), one of the national laboratories under the PHA has a "Scientific Sample Shuttle", which transports biological samples between the KI's campuses near Stockholm. [2] According to KI, three carriers are licensed to carry dangerous goods. [2] The Swedish Veterinary Institute also has a nationwide transport service that has been arranged through a private company in Uppsala that can take samples and animal bodies to SVA laboratories. [3] The Board of Agriculture also has a nationwide transport service for animal specimens. [4]

[1] Public Health Agency. November 2020. "Transport av prover för mikrobiologisk analys". [https://www.folkhalsomyndigheten.se/mikrobiologi-laboratorieanalyser/laboratorieanalyser-och-tjanster/information-for-bestallare/transport-mikrobiologiska-analyser/] Accessed 19 January 2021.
[2] Karolinska Institute. January 2020. "Transport av farligt gods och biologiska prover". [https://ki.se/medarbetare/transport-av-farligt-gods-och-biologiska-prover] Accessed 19 January 2021
[3] Swedish Veterinary Institute. "Budbilstjänst med avtalspriser för SVA:s kunder". [https://www.sva.se/vi-erbjuder/skicka-in-prover-och-djurkroppar/budbilstjanst-med-avtalspriser-for-sva-s-kunder/] Accessed 19 January 2021
[4] Board of Agriculture. 2021. "Transport av animaliska biprodukter och framställda produkter". [http://www.jordbruksverket.se/amnesomraden/djur/produkterfrandjur/transporter.4.6f9b86741329df6fab48000809.html] Accessed 19 January 2021

2.2.2 Laboratory cooperation and coordination

2.2.2a

Is there a plan in place to rapidly authorize or license laboratories to supplement the capacity of the national public health laboratory system to scale-up testing during an outbreak?

Yes = 2 , Yes, but there is evidence of gaps in implementation = 1 , No = 0

Current Year Score: 0

There is no publicly available evidence of a plan in place in Sweden to rapidly authorize or license laboratories to supplement the capacity of the national public health laboratory system to scale-up testing during an outbreak. Websites for the Public Health Authority, Board of Agriculture, Ministry of Defence and Ministry of Education and Research do not have publicly available strategies about testing for novel pathogens. [1,2,3,4] The Public Health Authority has published reports on pandemic preparedness that outline guidelines for international cooperation, but do not describe testing logistics and scaling capacity in detail. [5] Testing plans in response to COVID-19, the Public Health Authority has created a website about testing and information tracking. The website explains the tests that are available, eligibility for testing and how to access tests in the

public health system (www.1177.se). The website does not, however, address laboratory capacity to scale up testing during an outbreak. [6]

[1] Board of Agriculture. "Jordsbrukverket". [http://www.jordbruksverket.se/] Accessed 19 January 2021
[2] Ministry of Defence. "Ministry of Defence". [https://www.government.se/government-of-sweden/ministry-of-defence/] Accessed 19 January 2021
[3] Ministry of Education and Research. Ministry of Education and Research. [https://www.government.se/government-of-sweden/ministry-of-education-and-research/] Accessed 19 January 2021
[4] Public Health Authority. "Smittskydd & beredskap". [https://www.folkhalsomyndigheten.se/smittskydd-beredskap/] Accessed 19 January 2021
[5] Public Health Authority. "Pandemiberedskap". [https://www.folkhalsomyndigheten.se/smittskydd-beredskap/krisberedskap/pandemiberedskap/] Accessed 19 January 2021
[6] Public Health Authority. "Testning för covid-19", [https://www.folkhalsomyndigheten.se/smittskydd-beredskap/utbrott/aktuella-utbrott/covid-19/testning-och-smittsparning/] Accessed 19 Janary 2021

2.3 REAL-TIME SURVEILLANCE AND REPORTING

2.3.1 Indicator and event-based surveillance and reporting systems

2.3.1a

Is there evidence that the country is conducting ongoing event-based surveillance and analysis for infectious disease?
Yes, there is evidence of ongoing event-based surveillance and evidence that the data is being analyzed on a daily basis = 2, Yes, there is evidence of ongoing event-based surveillance, but no evidence that the data are being analyzed on a daily basis = 1, No = 0

Current Year Score: 1

There is evidence of ongoing event-based surveillance at the Public Health Agency of Sweden, but insufficient evidence to confirm that data are analysed on a daily basis. In 2015, the PHA implemented the event-based monitoring ("System för händelsebaserad övervakning"), which is a national system for monitoring and assessing outbreaks. The project was executed in collaboration with the Stockholm County Council and established the health status ("Hälsoläge") service to be offered to national, regional and local actors. [1] A 2016 report by the Swedish Civil Contingencies Agency (MSB) confirmed that the PHA had completed the implementation of the event-based surveillance plan, but does not describe how the plan uses event-based monitoring in Sweden or how often the data is analysed. [2] The PHA confirms that is "has a number of systems in which data from sources other than disease reports are analysed, for example searches and calls to the 1177 Care Guide. These systems have the potential to detect disease outbreaks earlier compared to reports from the healthcare system, and they partly cover another part of the population, such as those who did not seek care." However, there is no public information on the frequency of analysis. [3,4] Websites for the Ministries of Education and Research, Health and Social Affairs, the Board of Agriculture, the Public Health Agency and the Swedish Civil Contingencies Agency do not have additional information on the frequency of EBS. [5,6,7,8,9]

[1] Public Health Agency. 2016. "Årsredovisning 2015". [https://www.folkhalsomyndigheten.se/publicerat-material/publikationsarkiv/aa/arsredovisning-2015/] Accessed 19 January 2021
[2] Swedish Civil Contingencies Agency. 2016. "Anslag 2:4 Krisberedskap - uppföljning 2015 och inriktning 2017". [https://www.msb.se/RibData/Filer/pdf/28029.pdf] Accessed 19 January 2021
[3] Public Health Agency. 2020. "Krisberedskap". [https://www.folkhalsomyndigheten.se/smittskydd-beredskap/krisberedskap/] Accessed 19 January 2021

[4] Public Health Agency. Surveillance of communicable diseases. [https://www.folkhalsomyndigheten.se/the-public-health-agency-of-sweden/communicable-disease-control/surveillance-of-communicable-diseases/] Accessed 19 January 2021.
[5] Public Health Agency of Sweden. "Homepage". [https://www.folkhalsomyndigheten.se/] Accessed 19 January 2021
[6] Ministry of Education and Research. "Ministry of Education and Research". [https://www.government.se/government-of-sweden/ministry-of-education-and-research/] Accessed 19 January 2021
[7] Ministry of Health and Social Affairs. "Ministry of Health and Social Affairs". [https://www.government.se/government-of-sweden/ministry-of-health-and-social-affairs/] Accessed 19 January 2021
[8] Board of Agriculture. "Om Jordbruksverket". [https://jordbruksverket.se/om-jordbruksverket] Accessed 19 January 2021
[9] Swedish Civil Contingencies Agency. "Verktyg & tjänster". [https://www.msb.se/sv/verktyg--tjanster/] Accessed 19 January 2021

2.3.1b

Is there publicly available evidence that the country reported a potential public health emergency of international concern (PHEIC) to the WHO within the last two years?

Yes = 1 , No = 0

Current Year Score: 0

There is no publicly available evidence that Sweden reported a potential public health emergency of international concern (PHEIC) to the WHO within the last two years. According to the WHO Disease Outbreak News services, Sweden last reported an unusual increase in hepatitis A cases, particularly among men who have sex with men in June 2017. There is no evidence that Sweden reported COVID as a PHEIC to WHO before 30 January 2020. [1,2] Information from the Public Health Authority on cooperation with WHO does not mention reporting potential public health emergencies of international concern. [3] Websites for the Public Health Authority, Board of Agriculture, Ministry of Defence and Ministry of Education and Research do not have additional information. [4,5,6,7]

[1] World Health Organisation. 2021. "Disease outbreak news - SWEDEN". [https://www.who.int/csr/don/archive/country/swe/en/]. Accessed 26 January 2021.
[2] World Health Organisation. 7 Jun 2017. "Hepatitis A outbreaks mostly affecting men who have sex with men - European Region and the Americas." Disease outbreak news. [http://www.who.int/csr/don/07-june-2017-hepatitis-a/en/]. Accessed 26 January 2021.
[3] Public Health Authority. Internationellt samarbete. [https://www.folkhalsomyndigheten.se/folkhalsoarbete/internationellt-samarbete/] Accessed 26 January 2021
[4] Board of Agriculture. "Jordsbrukverket". [http://www.jordbruksverket.se/] Accessed 19 January 2021
[5] Ministry of Defence. "Ministry of Defence". [https://www.government.se/government-of-sweden/ministry-of-defence/] Accessed 19 January 2021
[6] Ministry of Education and Research. Ministry of Education and Research. [https://www.government.se/government-of-sweden/ministry-of-education-and-research/] Accessed 19 January 2021
[7] Public Health Authority. "Smittskydd & beredskap". [https://www.folkhalsomyndigheten.se/smittskydd-beredskap/] Accessed 19 January 2021

2.3.2 Interoperable, interconnected, electronic real-time reporting systems

2.3.2a

Does the government operate an electronic reporting surveillance system at both the national and the sub-national level?

Yes = 1 , No = 0

Current Year Score: 1

The government of Sweden operates an electronic reporting surveillance system at both the national and sub-national level. SmiNet is an electronic surveillance system, run by the Public Health Agency (PHA, Folkhälsomyndigheten) that administers electronic notification of infectious diseases as required under the Communicable Diseases Act (smittskyddslagen). The system is a partnership between the PHA and county councils' infectious disease physicians for national and local surveillance under Communicable Diseases Act. [1] Clinics and laboratories are required to report infectious diseases. Physicians and laboratories can access SmiNet, the national electronic reporting system, and report cases both in real time and continuously. [2] The system is available online to physicians and laboratories. [3] The reporting person must login to the system using a password that is issued by the National Security Office that is nearest to them. [3]

[1] SmiNet. "Vad är SmiNet?". [https://www.sminet.se/?page_id=4] Accessed 26 January 2021
[2] Public Health Administration. November 2021. "SmiNet". [https://www.folkhalsomyndigheten.se/smittskydd-beredskap/overvakning-och-rapportering/sminet/] Accessed 26 January 2021
[3] SmiNet. "SmiNet". [https://www.sminet.se/] Accessed 26 January 2021

2.3.2b

Does the electronic reporting surveillance system collect ongoing or real-time laboratory data?
Yes = 1 , No = 0

Current Year Score: 1

The electronic surveillance system collects ongoing and real time laboratory data. SmiNet is an electronic surveillance system, run in partnership with the Public Health Administration (PHA, Folkhälsomyndigheten) and local health councils. SmiNet administers electronic notification of infectious diseases as required under the Communicable Diseases Act (smittskyddslagen). Clinics and laboratories are required to report infectious diseases. SmiNet reports cases both in real time and continuously, where appropriate. Reporting is done both by the clinically treating physician and by the laboratory [1] The system is available online and physicians or laboratories can report diagnosed cases. [2]

[1] Public Health Administration. 12 November 2015. "SmiNet". [https://www.folkhalsomyndigheten.se/smittskydd-beredskap/overvakning-och-rapportering/sminet/] Accessed 14 December 2018
[2] SmiNet. "SmiNet". [https://www.sminet.se/] Accessed 26 January 2021

2.4 SURVEILLANCE DATA ACCESSIBILITY AND TRANSPARENCY

2.4.1 Coverage and use of electronic health records

2.4.1a

Are electronic health records commonly in use?
Electronic health records are commonly in use = 2, Electronic health records are not commonly in use, but there is evidence they are used = 1, No evidence electronic health records are in use = 0

Current Year Score: 2

In Sweden electronic health records (EHR) are commonly in use, with systems covering 85% of the population by 1994 and universal coverage today [1,2]. Persons over the age of 16 can access whatever electronic data exists via the 1177.se health guide web portal. The information available varies by county council or region and is based on the information that each

medical healthcare provider records during a medical visit. The information can also be accessed by health care providers. Persons can choose to block all or parts of their information. They can also choose which healthcare providers can access certain data. If there are missing entries or incorrect entries, a person can correct those. [3]

[1] K. Kajbjer, R. Nordberg, and G.O. Klein. 2010. " Electronic Health Records in Sweden: From Administrative Management to Clinical Decision Support".
[https://www.researchgate.net/publication/221271382_Electronic_Health_Records_in_Sweden_From_Administrative_Management_to_Clinical_Decision_Support] Accessed 26 January 2021.
[2] The Commonwealth Fund. "Sweden". [https://www.commonwealthfund.org/international-health-policy-center/countries/sweden#electronic-health-records] Accessed 26 January 2021 [1] 1177 Vårdguiden. "Läs din journal via nätet". [https://www.1177.se/Tema/E-tjanster/Artiklar/Las-din-journal-via-natet3/] Accessed 26 January 2021

2.4.1b

Does the national public health system have access to electronic health records of individuals in their country?

Yes = 1 , No = 0

Current Year Score: 1

The national public health system in Sweden has access to electronic health records of individuals in their country. The Swedish health care system is decentralised and responsibility lies with the county councils and, in some cases, local councils or municipal governments. [1] Sweden has been an early user of electronic health records and all health care providers in Sweden (both private and public) are obligated to use a publicly owned, secure national network established especially for electronic communication between health care providers. [1,2,3] The national public health system can access these records.

[1] Government of Sweden. 2020. "Healthcare in Sweden". [https://sweden.se/society/health-care-in-sweden/] Accessed 26 January 2021
[2] Kajbjer, Katrina, et al. 2010. "Electronic Health Records in Sweden: From Administrative Management to Clinical Decision Support".
[https://www.researchgate.net/publication/221271382_Electronic_Health_Records_in_Sweden_From_Administrative_Management_to_Clinical_Decision_Support] Accessed 26 January 2021
[3] Phillips. 2017. "How Sweden is giving all citizens access to their electronic health records". [https://www.philips.com/a-w/about/news/archive/future-health-index/articles/20171030-access-electronic-health-records.html] Accessed 26 January 2021

2.4.1c

Are there data standards to ensure data is comparable (e.g., ISO standards)?

Yes = 1 , No = 0

Current Year Score: 1

In Sweden there are data standards to ensure data is comparable (e.g. ISO standards). The National Strategy for E-Health is a key document which formulates Sweden's vision for IT development in health care and social services. The document aims for data interoperability in health care. It supports the CEN/ISO EN13606 standard to create a international standard. The CEN/ISO EN13606 was a European norm from the European Committee for Standardization (CEN), which is now approved as an international ISO standard. It is designed to achieve semantic interoperability in the electronic health record communication and has been implemented in the UK as well. [1,2]

[1] Government of Sweden. 2010. "National eHealth". [https://www.regeringen.se/contentassets/632b4d05795549bc98a45cc5321db1c8/national-ehealth---the-strategy-for-accessible-and-secure-information-in-health-and-social-care-s2011.023] Accessed 26 January 2021
[2] Austin, Tony, et al. 2013. "Evaluation of ISO EN 13606 as a result of its implementation in XML". [https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4107818/] Accessed 26 January 2021

2.4.2 Data integration between human, animal, and environmental health sectors

2.4.2a

Is there evidence of established mechanisms at the relevant ministries responsible for animal, human, and wildlife surveillance to share data (e.g., through mosquito surveillance, brucellosis surveillance)?

Yes = 1 , No = 0

Current Year Score: 1

There is public evidence of established mechanisms to share data among animal, human and wildlife surveillance activities. As an EU member states, Sweden follows Directive 2003/99/EC of the European Parliament and of the Council of 17 November 2003 on the monitoring of zoonoses and zoonotic agents, which requires "effective and continuous cooperation" across animal, human, feed and food hygiene sectors. [1,2] The purpose of the Directive is to ensure that zoonoses, zoonotic agents and related antimicrobial resistance are properly monitored to enable the collection of information necessary to evaluate relevant trends and sources. [2] Sweden has implemented a One Health surveillance and reporting approach for the Public Health Agency, National Veterinary Institute, Swedish Board of Agriculture, and the National Food Agency. They share data and publish an annual report that includes data about human and animal infectious diseases and zoonotic agents in humans, food, animals and feed. The latest report for 2019 also includes data on trends an insights on the time-series data for 2009 to 2019. [3] Integration of surveillance across human, animal and wildlife is also part of national legislation through the Communicable Diseases Act of 2004 (updated in 2020) and Zoonosis law of 1999 (updated in 2014), both of which require reporting across human, animal and wildlife authorities whenever communicable zoonotic diseases are diagnosed. [4,5]

[1] European Union. "Countries". [https://europa.eu/european-union/about-eu/countries_en] Accessed 26 January 2021
[2] European Union. 2003. "Directive 2003/99/EC of the European Parliament and of the Council of 17 November 2003 on the monitoring of zoonoses and zoonotic agents, amending Council Decision 90/424/EEC and repealing Council Directive 92/117/EEC". [https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=celex%3A32003L0099] Accessed 26 January 2021
[3] National Veterinary Institute. 2020. "Surveillance of infectious diseases in animals and humans in Sweden, 2019". [https://www.sva.se/media/fpodqpau/surveillance_2019.pdf] Accessed 26 January 2021
[4] Government of Sweden. 2004. "Smittskyddslag (2004:168)". [http://www.riksdagen.se/sv/dokument-lagar/dokument/svensk-forfattningssamling/smittskyddslag-2004168_sfs-2004-168] Accessed 27 January 2021
[5] Government of Sweden. 1999. "Zoonoslag". [https://www.riksdagen.se/sv/dokument-lagar/dokument/svensk-forfattningssamling/zoonoslag-1999658_sfs-1999-658] Accessed 27 January 2021

2.4.3 Transparency of surveillance data

2.4.3a

Does the country make de-identified health surveillance data on infectious diseases publicly available via reports (or other format) on government websites (such as the Ministry of Health, Ministry of Agriculture, or similar)?

Yes = 1 , No = 0

Current Year Score: 1

Sweden makes de-identified health surveillance data on disease outbreaks publicly available via reports (or other format) on government websites (such as the Ministry of Health, Ministry of Agriculture or similar), and these reports are available at least weekly. The Public Health Agency (PHA, "Folkhälsomyndigheten") has a webpage on outbreaks in Sweden. Information on current outbreaks of are reported on a daily or weekly basis on a webpage that is dedicated to outbreaks ("Utbrott" in Swedish). As of May 2021, the outbreak tracking website is reporting daily information on COVID-19 outbreaks and weekly information on a salmonella outbreak that was first identified in April 2021. [1] An archive of past outbreaks has daily and weekly information, depending on nature of the outbreak. [2] The Communicable Diseases Act (smittskyddslagen) also requires annual reporting in various communicable diseases. Reports for the year 2019 are available for more than 60 diseases including HIV, influenza, pneumonia, salmonella, tuberculosis and typhoid fever. [3]

[1] Public Health Agency. "Utbrott". [https://www.folkhalsomyndigheten.se/smittskydd-beredskap/utbrott/] Accessed 9 May 2021
[2] Public Health Agency. 2020. "Utbrottsarkiv". [https://www.folkhalsomyndigheten.se/smittskydd-beredskap/utbrott/utbrottsarkiv/] Accessed 27 January 2021
[3] Public Health Agency. 2020. " Årsrapporter - anmälningspliktiga sjukdomar". [https://www.folkhalsomyndigheten.se/folkhalsorapportering-statistik/tolkad-rapportering/arsrapporter-anmalningspliktiga-sjukdomar/] Accessed 27 January 2021

2.4.3b

Does the country make de-identified COVID-19 surveillance data (including details such as daily case count, mortality rate, etc) available via daily reports (or other formats) on government websites (such as the Ministry of Health, or similar)?
Yes = 1 , No = 0

Current Year Score: 1

Sweden has de-identified COVID-19 surveillance data (including details such as daily case count, mortality rate, etc) available via daily reports (or other formats) on government websites. The Public Health Authority has a website dedicated to confirmed cases in Sweden. [1] The website has daily updates, by region, on the number of confirmed cases, cases in intensive care, and deaths. [1] The data also are broken out by age group and gender.

[1] Public Health Authority. 2021. "Bekräftade fall i Sverige - daglig uppdatering". [https://www.folkhalsomyndigheten.se/smittskydd-beredskap/utbrott/aktuella-utbrott/covid-19/statistik-och-analyser/bekraftade-fall-i-sverige/] Accessed 27 January 2021

2.4.4 Ethical considerations during surveillance

2.4.4a

Is there legislation and/or regulations that safeguard the confidentiality of identifiable health information for individuals, such as that generated through health surveillance activities?
Yes = 1 , No = 0

Current Year Score: 1

There are laws and regulations that safeguard the confidentiality of identifiable health information for individuals, such as that generated through health surveillance activities. The Patient Data law (Patientdatalag (2008:355)), which was updated in

2020, specifically covers electronic patient data and safeguards the confidentiality of patient data. [1] In May 2018, the Data Protection Act (2018:218) went into effect to supplement the EU General Data Protection Regulation (GDPR), which introduced strict data protection regulation for all EU member states. Any entity that collects personal data is required to keep personal information as safe as possible, disclose how data is used, and allow persons access to their data. Violations are subject to penalties. [2] Before the GDPR, personal health data fell under the Swedish Personal Information Act (repealed in 2018). It stated that personal information could only be gathered and stored when necessary in the practice of preventative care, to make a medical diagnosis, to care for or treat the patient, or to administer health care. [3]

[1] Government of Sweden. 2008. "Patientdatalag (2008:355)". [https://www.riksdagen.se/sv/dokument-lagar/dokument/svensk-forfattningssamling/patientdatalag-2008355_sfs-2008-355] Accessed 27 January 2021
[3] IT Governance. "The Swedish Data Protection Authority (Datainspektionen)". [https://www.itgovernance.eu/sv-se/eu-gdpr-compliance-se] Accessed 27 January 2021
[3] Government of Sweden. "Personuppgiftslag (1998:204)". [https://www.riksdagen.se/sv/dokument-lagar/dokument/svensk-forfattningssamling/personuppgiftslag-1998204_sfs-1998-204] Accessed 27 January 2021

2.4.4b

Is there legislation and/or regulations safeguarding the confidentiality of identifiable health information for individuals, such as that generated through health surveillance activities, include mention of protections from cyber attacks (e.g., ransomware)?

Yes = 1 , No = 0

Current Year Score: 1

There is public evidence that the laws, regulations, or guidelines safeguarding the confidentiality of identifiable health information for individuals, such as that generated through health surveillance activities, include mention of protections from cyber attacks. The confidentiality of identifiable health information for individuals is safeguarded by the EU's General Data Protection Regulation (GDPR) in Sweden, which came into force in May 2018. GDPR contains stipulations around network and information security, including a requirement that data held by state authorities must be overseen by a dedicated data protection officer who is proficient in dealing with cyber attacks and a requirement to inform all affected individuals within 72 hours of discovering a data breach. [1] The Patient Data law (Patientdatalag (2008:355)) specifically covers electronic patient data and safeguards the confidentiality of patient data. However, it does not mention protections from cyber attacks. [2]

[1] Official Journal of the European Union. 27 April 2016. "REGULATION (EU) 2016/679 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 27 April 2016 on the protection of natural persons with regard to the processing of personal data and on the free movement of such data, and repealing Directive 95/46/EC (General Data Protection Regulation)". [https://eur-lex.europa.eu/legal-content/EN/TXT/HTML/?uri=CELEX:32016R0679&from=EN]. Accessed 27 January 2021.
[2] Government of Sweden. 19 April 2018. "Lag (2018:218) med kompletterande bestämmelser till EU:s dataskyddsförordning". [https://www.riksdagen.se/sv/dokument-lagar/dokument/svensk-forfattningssamling/lag-2018218-med-kompletterande-bestammelser_sfs-2018-218] Accessed 27 January 2021

2.4.5 International data sharing

2.4.5a

Has the government made a commitment via public statements, legislation and/or a cooperative agreement to share surveillance data during a public health emergency with other countries in the region?

Yes, commitments have been made to share data for more than one disease = 2, Yes, commitments have been made to share data only for one disease = 1, No = 0

Current Year Score: 2

There is evidence that the government of Sweden has made a commitment to share surveillance data during a public health emergency with other countries in the region for diseases generally. The Public Health Agency (PHA, "Folkhälsomyndigheten") is the government entity that is responsible for promoting international cooperation with the EU and internationally. Much of the work is conducted in partnership with the European Union (EU)'s various institutions, the World Health Organization (WHO), and other UN agencies. [1] The PHA shares local health and disease data with the European Anti-Diseases Agency (ECDC), the European Monitoring Centre for Drugs and Drug Addiction (EMCDDA), the EU health program and the UN Office for Drugs and Crime, UNODC. [1] As a member of the European Union, Sweden shares surveillance data during a public health emergency with other countries in the region. All EU and EEA countries are part of the European Centre for Disease Prevention and Control's Early Warning and Response System (EWRS). The EWRS is a platform to "allow exchange of information on risk assessment and risk management for more timely, efficient and coordinated public health action... The EWRS is used for notifications on outbreaks, exchanging information and decisions about the coordination of measures among Member States. Over the years, it has played an important role to support health crisis related to severe acute respiratory syndrome (SARS), Ebola virus disease, avian influenza in humans and other communicable diseases." [2] Article 9 of Chapter IV of the European Union (EU) Decision on Serious Cross-Border Threats to Health notes that the European Commission "shall make available to the national competent authorities through the EWRS any information that may be useful for coordinating the response...including information related to serious cross-border threats to health and public health measures related to serious cross-border threats to health transmitted through rapid alert and information systems established under other provisions of Union law or the Euratom Treaty." [3]

[1] Public Health Agency. "Internationellt samarbete". [https://www.folkhalsomyndigheten.se/om-folkhalsomyndigheten/internationellt-samarbete/] Accessed 27 January 2021
[2] European Centre for Disease Prevention and Control. "Early Warning and Response System (EWRS)." [https://ecdc.europa.eu/en/early-warning-and-response-system-ewrs]. Accessed 27 January 2021.
[3] Decision No 1082/2013/EU of the European Parliament and of the Council of 22 October 2013 on Serious Cross-Border Threats to Health and Repealing Decision No 2119/98/EC. Official Journal of the European Union. [https://ec.europa.eu/health/sites/health/files/preparedness_response/docs/decision_serious_crossborder_threats_22102013_en.pdf]. Accessed 27 January 2021.

2.5 CASE-BASED INVESTIGATION

2.5.1 Case investigation and contact tracing

2.5.1a

Is there a national system in place to provide support at the sub-national level (e.g. training, metrics standardization and/or financial resources) to conduct contact tracing in the event of a public health emergency?

Yes, there is evidence that the national government supports sub-national systems to prepare for future public health emergencies = 2, Yes, there is evidence that the national government supports sub-national systems, but only in response to active public health emergencies = 1, No = 0

Current Year Score: 1

While Sweden does not have a national system in place to provide support at the sub-national level (e.g. training, metrics standardization and/or financial resources) to conduct contact tracing in the event of a future public health emergency, there

are some systems in place for COVID-19. The COVID-19 Health System Response Monitor, a service of the WHO, reports that until March 12, 2020, the health system followed suspected cases with sampling and contact tracing. As the outbreak grew, the government shifted its efforts to delaying the spread of the infection. On July 23, 2020, the Public Health Authority issued guidance that every person with confirmed COVID-19 has the responsibility to inform close contacts of the positive test. [1] According to a press release from the Ministry of Finance and Ministry of Social Affairs, however, the government is investing SEK 5.9 billion in "expanded testing and infection tracing". It aims to create conditions for, and to support each region on large-scale antibody testing and testing for symptoms of covid-19, PCR testing. [2] Websites for the Board of Agriculture, Ministry of Defence and Ministry of Education and Research do not have additional information. [3,4,5]

[1] WHO. 2021. Covid-19 Health System Response Monitor.
[https://www.covid19healthsystem.org/countries/sweden/livinghit.aspx?Section=1.4%20Monitoring%20and%20surveillance&Type=Section] Accessed 27 January 2021
[2] Regeringskansliet. "The government is investing SEK 5.9 billion in expanded testing and infection tracing"
[https://www.regeringen.se/pressmeddelanden/2020/06/regeringen-satsar-59-miljarder-pa-utokad-testning-och-smittsparning/]. Accessed 15 September 2021
[3] Board of Agriculture. "Jordsbrukverket". [http://www.jordbruksverket.se/] Accessed 19 January 2021
[4] Ministry of Defence. "Ministry of Defence". [https://www.government.se/government-of-sweden/ministry-of-defence/] Accessed 19 January 2021
[5] Ministry of Education and Research. Ministry of Education and Research. [https://www.government.se/government-of-sweden/ministry-of-education-and-research/] Accessed 19 January 2021

2.5.1b

Does the country provide wraparound services to enable infected people and their contacts to self-isolate or quarantine as recommended, particularly economic support (paycheck, job security) and medical attention?

Yes, both economic support and medical attention are provided = 2, Yes, but only economic support or medical attention is provided = 1, No = 0

Current Year Score: 2

Sweden provides wraparound services to enable infected people and their contacts to self-isolate or quarantine as recommended, particularly economic support (paycheck, job security) and medical attention. The government safety net provides sick pay for all workers that acts as paycheck protection and access to medical attention is universal for all residents in Sweden [1,2]. Additionally, in response to the COVID-19 pandemic, Sweden changed its reimbursement for sick leave. Under the new rules, payment for sick leave is 80% of salary and begins on the first day. It is available to anyone who must self-isolate, including confirmed cases and their contacts. Before the change, reimbursement (80% of salary) began on the second day of leave. [3,4,5] Medical attention is available through the public health system, which is universal. [2]

[1] European Commission. "Sweden - Benefits during sickness".
[https://ec.europa.eu/social/main.jsp?catId=1130&langId=en&intPageId=4810] Accessed 27 January 2021.
[2] Government of Sweden. 2020. Healthcare in Sweden. [https://sweden.se/society/health-care-in-sweden/] Accessed 27 January 2021
[3] The Local. 2021. Sweden changes sick pay rules to help fight coronavirus. [https://www.thelocal.se/20200311/sweden-changes-sick-pay-rules-to-help-fight-coronavirus] Accessed 27 January 2021
[4] Umea University. 2021. Reimbursements during sick leave. [https://www.aurora.umu.se/en/employment/employment-conditions/leave-of-absence/sick-leave/sick-pay/] Accessed 27 January 2021
[5] Government of Sweden. 2021. The government's work in response to Covid-19.
[https://www.government.se/government-policy/the-governments-work-in-response-to-the-virus-responsible-for-covid-19/]

Accessed 27 January 2021
[4] Government of Sweden. 2020. Healthcare in Sweden. [https://sweden.se/society/health-care-in-sweden/] Accessed 27 January 2021

2.5.1c

Does the country make de-identified data on contact tracing efforts for COVID-19 (including the percentage of new cases from identified contacts) available via daily reports (or other format) on government websites (such as the Ministry of Health, or similar)?

Yes = 1 , No = 0

Current Year Score: 0

Sweden does not make de-identified data on contact tracing efforts for COVID-19 (including the percentage of new cases from identified contacts) available via daily reports (or other format) on government websites (such as the Ministry of Health, or similar). The government of Sweden does not conduct contact tracing. The COVID-19 Health System Response Monitor, a service of the WHO, reports that until March 12, 2020, the health system followed suspected cases with sampling and contact tracing. As the outbreak grew, the government shifted its efforts to delaying the spread of the infection. On July 23, 2020, the Public Health Authority issued guidance that every person with confirmed COVID-19 has the responsibility to inform close contacts of the positive test. [1] The Public Health Authority describes contact tracing, but does there is no indication that it currently has a national system in place. [2] Websites for the Board of Agriculture, Ministry of Defence and Ministry of Education and Research do not have additional information. [3,4,5]

[1] WHO. 2021. Covid-19 Health System Response Monitor. [https://www.covid19healthsystem.org/countries/sweden/livinghit.aspx?Section=1.4%20Monitoring%20and%20surveillance&Type=Section] Accessed 27 January 2021
[2] Public Health Authority. 2021. FAQs about COVID-19. [https://www.folkhalsomyndigheten.se/the-public-health-agency-of-sweden/communicable-disease-control/covid-19/covid-19-faq/] Accessed 27 January 2021
[3] Board of Agriculture. "Jordsbrukverket". [http://www.jordbruksverket.se/] Accessed 19 January 2021
[4] Ministry of Defence. "Ministry of Defence". [https://www.government.se/government-of-sweden/ministry-of-defence/] Accessed 19 January 2021
[5] Ministry of Education and Research. Ministry of Education and Research. [https://www.government.se/government-of-sweden/ministry-of-education-and-research/] Accessed 19 January 2021

2.5.2 Point of entry management

2.5.2a

Is there a joint plan or cooperative agreement between the public health system and border control authorities to identify suspected and potential cases in international travelers and trace and quarantine their contacts in the event of a public health emergency?

Yes, plan(s)/agreement(s) are in place to prepare for future public health emergencies = 2, Yes, but plan(s)/agreement(s) are in place only in response to active public health emergencies = 1, No = 0

Current Year Score: 0

There is no evidence of a joint plan or cooperative agreement between the public health system and border control authorities to identify suspected and potential cases in international travelers and trace and quarantine their contacts in the event of an active or future public health emergency. The COVID-19 Health System Response Monitor, a service of the WHO,

reports that until March 12, 2020, the health system followed suspected cases with sampling and contact tracing. As the outbreak grew, the government shifted its efforts to delaying the spread of the infection. On July 23, 2020, the Public Health Authority issued guidance that every person with confirmed COVID-19 has the responsibility to inform close contacts of the positive test. [1] The Public Health Authority describes contact tracing, but does there is no indication that it currently has a national system in place. [2] Websites for the Board of Agriculture, Ministry of Defence and the Police (border control agency) do not have additional information. [3,4,5]

[1] WHO. 2021. Covid-19 Health System Response Monitor. [https://www.covid19healthsystem.org/countries/sweden/livinghit.aspx?Section=1.4%20Monitoring%20and%20surveillance&Type=Section] Accessed 27 January 2021
[2] Public Health Authority. 2021. FAQs about COVID-19. [https://www.folkhalsomyndigheten.se/the-public-health-agency-of-sweden/communicable-disease-control/covid-19/covid-19-faq/] Accessed 27 January 2021
[3] Board of Agriculture. "Jordsbrukverket". [http://www.jordbruksverket.se/] Accessed 19 January 2021
[4] Ministry of Defence. "Ministry of Defence". [https://www.government.se/government-of-sweden/ministry-of-defence/] Accessed 19 January 2021
[5] Polisen. Border Control. [https://polisen.se/en/laws-and-regulations/travel-to-and-stay-in-sweden/border-control/] Accessed 19 January 2021

2.6 EPIDEMIOLOGY WORKFORCE

2.6.1 Applied epidemiology training program, such as the field epidemiology training program, for public health professionals and veterinarians (e.g., Field Epidemiology Training Program [FETP] and Field Epidemiology Training Program for Veterinarians [FETPV])

2.6.1a

Does the country meet one of the following criteria?
- Applied epidemiology training program (such as FETP) is available in country
- Resources are provided by the government to send citizens to another country to participate in applied epidemiology training programs (such as FETP)

Needs to meet at least one of the criteria to be scored a 1 on this measure. , Yes for both = 1 , Yes for one = 1 , No for both = 0

Current Year Score: 1

In Sweden, epidemiology training programs (such as FETP) are available in the country but there is no public information about resources to send participants to participate in epidemiology training programs (such as FETP) in other countries. As a member of the European Union, Sweden participates in the European Centre for Disease Prevention and Control (ECDC) fellowship program, which is a two-year training program that covers field epidemiology (EPIET). There are two tracks; one where students travel within the EU and one where the students train in their home country for the duration of the training. [1] Karolinska Institute has a masters in applied epidemiology " to develop the student's skills in describing, analysing and reflecting on different types of public health problems and evaluating interventions as well as in critical review of epidemiological studies." [2] Websites for the Public Health Agency, Board of Agriculture and Ministry of Education and Research do not have additional information about government resources to send citizens to another country to participate in applied epidemiology training programs (such as FETP). [3,4,5]

[1] TEPHINET. "European Programme for Intervention Epidemiology Training (EPIET) and the European Programme for Public Health Microbiology Training (EUPHEM)". [https://www.tephinet.org/training-programs/european-programme-for-

intervention-epidemiology-training-epiet-and-the-european] Accessed 27 January 2021
[2] Karolinska Institute. "Master's Programme in Public Health Sciences". [https://education.ki.se/programme-syllabus/4FH19] Accessed 27 January 2021
[3] Public Health Agency. "Folkhälsomyndigheten". [https://www.folkhalsomyndigheten.se/]
[4] Board of Agriculture. "Jordsbrukverket". [http://www.jordbruksverket.se/] Accessed 27 January 2021
[5] Ministry of Education and Research. Ministry of Education and Research. [https://www.government.se/government-of-sweden/ministry-of-education-and-research/] Accessed 27 January 2021

2.6.1b

Are the available field epidemiology training programs explicitly inclusive of animal health professionals or is there a specific animal health field epidemiology training program offered (such as FETPV)?

Yes = 1 , No = 0

Current Year Score: 1

In Sweden there are available specific animal health field epidemiology training program offered (veterinary science with a specialisation in animal-specific diseases). The Ministry of Agriculture ("Jordbruksverket") describes speciality veterinary training and jobs that are available in Sweden. After training in veterinary science, a veterinarian can choose to specialise in the study of animal-specific field epidemiology. The specialisation requires three additional years of schooling and certification by the Ministry of Agriculture. [1] As a member of the European Union, Sweden also participates in the European Centre for Disease Prevention and Control (ECDC) fellowship program, which is a two-year training program that covers field epidemiology (EPIET) and public health microbiology (EUPHEM), which is inclusive of animal health professionals. There are two tracks; one where students travel within the EU and one where the students train in their home country for the duration of the training. [2]

[1] Ministry of Agriculture. 2019. "Specialistkompetens som veterinär". [https://www.jordbruksverket.se/amnesomraden/djur/djurhalsopersonal/arbeteinomdjurenshalsoochsjukvard/specialistkompetenssomveterinar.4.32b12c7f12940112a7c800024453.html] Accessed 27 January 2021
[2] TEPHINET. "European Programme for Intervention Epidemiology Training (EPIET) and the European Programme for Public Health Microbiology Training (EUPHEM)". [https://www.tephinet.org/training-programs/european-programme-for-intervention-epidemiology-training-epiet-and-the-european] Accessed 27 January 2021

2.6.2 Epidemiology workforce capacity

2.6.2a

Is there public evidence that the country has at least 1 trained field epidemiologist per 200,000 people?

Yes = 1 , No = 0

Current Year Score: 0

2020

Completed JEE assessments; Economist Impact analyst qualitative assessment based on official national sources, which vary by country

Category 3: Rapid response to and mitigation of the spread of an epidemic

3.1 EMERGENCY PREPAREDNESS AND RESPONSE PLANNING

3.1.1 National public health emergency preparedness and response plan

3.1.1a

Does the country have an overarching national public health emergency response plan in place which addresses planning for multiple communicable diseases with epidemic or pandemic potential?

Evidence that there is a plan in place, and the plan is publicly available = 2, Evidence that the plan is in place, but the plan is not publicly available OR, Disease-specific plans are in place, but there is no evidence of an overarching plan = 1, No evidence that such a plan or plans are in place = 0

Current Year Score: 2

Sweden has an overarching national health preparedness plans that address planning for multiple communicable diseases with pandemic potential and information is publicly available. The PHA published three documents on pandemic planning support. Each document focuses on a specific aspect of communicable diseases with pandemic potential and the plan is scalable for one or several diseases. The first document covers stakeholder surveillance and planning. It addresses coordination of healthcare providers, knowledge planning, ethical aspects, communication and financing. [1] The second preparedness document addresses communication and primarily aimed at the infectious diseases units as well as communication managers and communicators at the national, regional and local authorities who have a responsibility to communicate in connection with a pandemic. [1] The third planning document covers the supply of medical counter interventions. It guide provides information on the medicines on standby, how they are made available and how to use them. It supports the regions' planning of how they can manage and implement medical countermeasures and a brief description of the roles and responsibilities of the national authorities involved. [1] The PHA publishes information on specific planning for influenza, which includes agreements to manufacture vaccinations and stockpiling of medical countermeasures. [1]

In addition to the plan on pandemic preparedness, the website for the Public Health Agency (PHA) has a section that outlines crisis preparedness measures that are in place in the event of a public health emergency such as a pandemic outbreak. [2] The PHA monitors over 60 diseases according to the Communicable Disease Act and laboratories are ready to initiate early actions if one or several communicable diseases with pandemic potential are detected. Emergency communications and press liaisons are ready and have a plan in place. [2] The PHA has also implemented International Health Regulations and "is responsible for coordinating the preparedness against serious health threats according to the Act on Protection against International Threats to Human Health." [3] The PHA publishes guidelines on risk assessment, quarantine, declaration of health threats and declaration of decontamination. [3]

The PHA also describes its responsibility to coordinate the response to emergencies caused by biological, chemical or radio nuclear substances as well as health threats with environmental origin or unknown origin. [4,5,6]

[1] Public Health Agency. 2020. "Pandemivaccin vid influensapandemi". [https://www.folkhalsomyndigheten.se/smittskydd-beredskap/krisberedskap/pandemiberedskap/pandemivaccin-vid-influensapandemi/] Accessed 27 January 2021
[2] Public Health Agency. 2020. "Krisberedskap". [https://www.folkhalsomyndigheten.se/smittskydd-beredskap/krisberedskap/] Accessed 27 January 2021
[3] Public Health Agency. 2020. "IHR - Internationella hälsoreglementet". [https://www.folkhalsomyndigheten.se/smittskydd-beredskap/krisberedskap/ihr-internationella-halsoreglementet/] Accessed 27 January 2021

[4] Public Health Agency. 2020. "Samordning inför och vid kris" [https://www.folkhalsomyndigheten.se/smittskydd-beredskap/krisberedskap/samordning-infor-och-vid-kris/] Accessed 27 January 2021
[5] Public Health Agency. 2020. "Zoonosberedskap". [https://www.folkhalsomyndigheten.se/smittskydd-beredskap/krisberedskap/samordning-infor-och-vid-kris/zoonosberedskap/] Accessed 27 January 2021
[6] Public Health Agency. 2020. "B-samordning". [https://www.folkhalsomyndigheten.se/smittskydd-beredskap/krisberedskap/samordning-infor-och-vid-kris/b-samordning/] Accessed 27 January 2021

3.1.1b

If an overarching plan is in place, has it been updated in the last 3 years?

Yes = 1 , No /no plan in place= 0

Current Year Score: 1

The national pandemic plans of Sweden have been updated within the last three years. The PHA monitors over 60 diseases according to the Communicable Disease Act and laboratories are ready to initiate early actions if one or several communicable diseases with pandemic potential are detected. Emergency communications and press liaisons are ready and have a plan in place. In 2019 the PHA published three documents on pandemic planning support. They cover stakeholder surveillance and planning, communication and supply of medical counter interventions. [1]

[1] Public Health Agency. 2020. "Krisberedskap". [https://www.folkhalsomyndigheten.se/smittskydd-beredskap/krisberedskap/] Accessed 27 January 2021

3.1.1c

If an overarching plan is in place, does it include considerations for pediatric and/or other vulnerable populations?

Yes = 1 , No /no plan in place= 0

Current Year Score: 0

There is insufficient evidence that national pandemic planning in Sweden include considerations for pediatric and other vulnerable populations. In 2019, the Public Health Authority published pandemic plans that cover stakeholder coordination, communication and medical counter interventions. [1] The pandemic coordination plan has a short section immunity and risk groups. It discusses how children, young people and old people may have different levels of vulnerability to an influenza pandemic, but it does not describe how to prioritise or treat them. [1] The pandemic communication plan states that communication during a pandemic event must include "what applies to groups with specific needs, such as pregnant, children, elderly and medical risk groups", but it does not give further guidance. [1] The medical supplies plan does not address vulnerable groups. [1] The Swedish Civil Contingencies Agency (MSB) does not have additional information about vulnerable groups and planning for pandemic disease. [2]

[1] Public Health Agency. 2020. "Krisberedskap". [https://www.folkhalsomyndigheten.se/smittskydd-beredskap/krisberedskap/] Accessed 27 January 2021
[2] Swedish Civil Contingencies Agency. "Om MSB". [https://www.msb.se/en/About-MSB/Crisis-Management-in-Sweden/] Accessed 27 January 2021

3.1.1d

Does the country have a publicly available plan in place specifically for pandemic influenza preparedness that has been updated since 2009?

Yes = 1 , No = 0

Current Year Score: 1

2020

WHO Strategic Partnership for IHR and Health Security (SPH)

3.1.2 Private sector involvement in response planning

3.1.2a

Does the country have a specific mechanism(s) for engaging with the private sector to assist with outbreak emergency preparedness and response?

Yes = 1 , No = 0

Current Year Score: 0

There is insufficient evidence to conclude that Sweden has specific mechanism(s) for engaging with the private sector to assist with outbreak emergency preparedness and response. According to the Swedish Civil Contingencies Agency (MSB), cooperation between private companies and the public sector for emergency preparedness is voluntary. Most voluntary agreements are between large companies that provide infrastructure such as electricity and telecommunications and are not publicly available. [1] The Public Health Agency (PHA, Folkhälsomyndigheten) does not have information about partnerships with the private sector to emergency preparedness. [2]

[1] Swedish Civil Contingencies Agency. "Privat-offentlig samverkan". [https://www.msb.se/sv/amnesomraden/krisberedskap--civilt-forsvar/samverkansforum/privat-offentlig-samverkan/] Accessed 27 January 2021
[2] Public Health Agency. 2020. "Krisberedskap". [https://www.folkhalsomyndigheten.se/smittskydd-beredskap/krisberedskap/] Accessed 27 January 2021

3.1.3 Non-pharmaceutical interventions planning

3.1.3a

Does the country have a policy, plan and/or guidelines in place to implement non-pharmaceutical interventions (NPIs) during an epidemic or pandemic?

Yes, a policy, plan and/or guidelines are in place for more than one disease= 2, Yes, but the policy, plan and/or guidelines exist only for one disease = 1, No = 0

Current Year Score: 1

There is evidence to conclude that Sweden has guidelines in place to implement non-pharmaceutical interventions (NPIs) during the COVID-19 pandemic, but there are no general guidelines on NPIs in response to epidemics or pandemics. In 2019, the Public Health Agency published pandemic plans that cover stakeholder coordination, communication and medical counter interventions. The plans do not cover NPIs. [1] Websites for the Swedish Civil Contingencies Agency (MSB), Public Health Agency and Ministry of Defence do not have additional information about NPIs during a pandemic. [2,3,4] In response to the COVID-19 pandemic, the government passed a temporary COVID-19 law in January 2021. The law gives local governments the legal ability to close businesses and limit gatherings of people in order to limit the spread. The law will expire on 30 September 2021. [5,6] The Public Health Agency has issued guidelines to reduce the spread of the COVID-19

pandemic. These include personal responsibility to protect yourself and others, precautionary measures such as hand washing, limiting close contacts, social distancing, and wearing face masks for people born before 2004, among others. [7]

[1] Public Health Agency. 2020. "Krisberedskap". [https://www.folkhalsomyndigheten.se/smittskydd-beredskap/krisberedskap/] Accessed 27 January 2021
[2] Swedish Civil Contingencies Agency. "Omm MSB". [https://www.msb.se/en/About-MSB/Crisis-Management-in-Sweden/] Accessed 27 January 2021
[3] Ministry of Defence. "Ministry of Defence". [https://www.government.se/government-of-sweden/ministry-of-defence/] Accessed 19 January 2021
[4] Public Health Authority. "Smittskydd & beredskap". [https://www.folkhalsomyndigheten.se/smittskydd-beredskap/] Accessed 19 January 2021
[5] Government of Sweden. 2021. Parliament says yes to new pandemic law. [https://www.krisinformation.se/en/news/2021/january/parliament-says-yes-to-new-pandemic-law] Accessed 27 January 2021.
[6] Government of Sweden. 2021. Nya regler införs för gym- och sportanläggningar, badhus, handelsplatser och platser för privata sammankomster. [https://www.regeringen.se/pressmeddelanden/2021/01/nya-regler-infors-for-gym--och-sportanlaggningar-badhus-handelsplatser-och-platser-for-privata-sammankomster/] Accessed 27 January 2021
[7] Public Health Agency. “Regulations and general guidelines”. [https://www.folkhalsomyndigheten.se/the-public-health-agency-of-sweden/communicable-disease-control/covid-19/regulations-and-general-guidelines/] Accessed 9 May 2021.

3.2 EXERCISING RESPONSE PLANS

3.2.1 Activating response plans

3.2.1a

Does the country meet one of the following criteria?
- Is there evidence that the country has activated their national emergency response plan for an infectious disease outbreak in the past year?
- Is there evidence that the country has completed a national-level biological threat-focused exercise (either with WHO or separately) in the past year?
Needs to meet at least one of the criteria to be scored a 1 on this measure. , Yes for both = 1 , Yes for one = 1 , No for both = 0

Current Year Score: 1

There is evidence that Sweden has activated its national emergency response plan for an infectious disease outbreak in the past year, but insufficient evidence that it has completed a national-level biological threat-focused exercise (either with WHO or separately) in the past year. The COVID-19 Health System Response Monitor, a monitoring service by the WHO, confirms that Sweden activated the contingency plans for pandemic influenza at national, regional and local levels in 2020. [1] The website for the Public Health Authority publishes the contingency plans and the information about its response to COVID-19 aligns with those plans. [2,3] Websites for the Public Health Authority, Board of Agriculture, WHO Simulation Exercises and WHO local office do not have information about any biological threat-focused exercises in the last year. [4,5,6,7]

[1] WHO. 2021. COVID-19 Health System Response Monitor. [https://www.covid19healthsystem.org/countries/sweden/livinghit.aspx?Section=5.1%20Governance&Type=Section] Accessed 27 January 2021.
[2] Public Health Authority. 2020. "Krisberedskap". [https://www.folkhalsomyndigheten.se/smittskydd-

beredskap/krisberedskap/] Accessed 27 January 2021
[3] Public Health Authority. 2021. COVID-19 [https://www.folkhalsomyndigheten.se/smittskydd-beredskap/utbrott/aktuella-utbrott/covid-19/] Accessed 27 January 2021
[4] Public Health Authority. "Smittskydd & beredskap". [https://www.folkhalsomyndigheten.se/smittskydd-beredskap/] Accessed 19 January 2021
[5] Board of Agriculture. "Jordsbrukverket". [http://www.jordbruksverket.se/] Accessed 19 January 2021
[6] WHO. Simulation Exercise. [https://extranet.who.int/sph/simulation-exercise] Accessed 27 January 2021
[7] WHO. Sweden. [https://www.euro.who.int/en/countries/Sweden] Accessed 27 January 2021

3.2.1b

Is there evidence that the country in the past year has identified a list of gaps and best practices in response (either through an infectious disease response or a biological-threat focused exercise) and developed a plan to improve response capabilities?

Yes, the country has developed and published a plan to improve response capacity = 2 , Yes, the country has developed a plan to improve response capacity, but has not published the plan = 1 , No = 0

Current Year Score: 0

There is no evidence that in the last year Sweden has undergone an exercise to identify a list of gaps and best practices through either an after action review (post emergency response) or a biological threat-focused IHR exercise with the World Health Organization (WHO). The WHO after action review page does not have any information on exercises with Sweden. [1] Websites for the Public Health Authority, Board of Agriculture, WHO Europe, WHO local office, and WHO IHR portal do not have information about any biological threat-focused exercises in the last year. [2,3,4,5,6]

[1] World Health Organization. "After Action Review." [https://extranet.who.int/sph/after-action-review]. Accessed 27 January 2021.
[2] Public Health Authority. "Smittskydd & beredskap". [https://www.folkhalsomyndigheten.se/smittskydd-beredskap/] Accessed 19 January 2021
[3] Board of Agriculture. "Jordsbrukverket". [http://www.jordbruksverket.se/] Accessed 19 January 2021
[4] WHO. European Program of Work. [https://www.euro.who.int/en/home] Accessed 27 January 2021
[5] WHO. Sweden. [https://www.euro.who.int/en/countries/Sweden] Accessed 27 January 2021
[6] WHO. IHR portal. [https://www.who.int/ihr/access/en/] Accessed 27 January 2021

3.2.2 Private sector engagement in exercises

3.2.2a

Is there evidence that the country in the past year has undergone a national-level biological threat-focused exercise that has included private sector representatives?

Yes = 1 , No = 0

Current Year Score: 0

There is no evidence that Sweden in the past year has undergone a national-level biological threat-focused exercise that has included private sector representatives. The WHO after action review and simulation exercise web pages do not have any information on exercises with Sweden. [1,2] Websites for the Public Health Authority, Board of Agriculture, WHO Europe, WHO local office, and WHO IHR portal do not have information about any biological threat-focused exercises in the last year.

[3,4,5,6,7]

[1] World Health Organization. "After Action Review." [https://extranet.who.int/sph/after-action-review]. Accessed 27 January 2021.
[2] WHO. "Simulation Exercise". [https://www.bokus.com/cgi-bin/product_search.cgi?ac_used=yes&search_word=invisible+women] Accessed March 1, 2021.
[3] Public Health Authority. "Smittskydd & beredskap". [https://www.folkhalsomyndigheten.se/smittskydd-beredskap/] Accessed 19 January 2021
[4] Board of Agriculture. "Jordsbrukverket". [http://www.jordbruksverket.se/] Accessed 19 January 2021
[5] WHO. European Program of Work. [https://www.euro.who.int/en/home] Accessed 27 January 2021
[6] WHO. Sweden. [https://www.euro.who.int/en/countries/Sweden] Accessed 27 January 2021
[7] WHO. IHR portal. [https://www.who.int/ihr/access/en/] Accessed 27 January 2021

3.3 EMERGENCY RESPONSE OPERATION

3.3.1 Emergency response operation

3.3.1a

Does the country have in place an Emergency Operations Center (EOC)?

Yes = 1 , No = 0

Current Year Score: 1

Sweden has an Emergency Operations Centre. According to the Swedish Civil Contingencies Agency (MSB), each government office is responsible for civil emergency planning in its own area of expertise. [1] The Public Health Authority (PHA) has the responsibility to coordinate protection at national level; preparations for the delivery of medical countermeasure during serious outbreaks of certain communicable diseases; and preparedness for serious cross-border health threats. The PHA has an emergency preparedness unit that is ready 24 hours a day and accessible to all authorities and the media. [2] There is also an official emergency readiness clerk (Tjänsteman i beredskap) who is available at all times to coordinate actions both domestically and internationally. [3]

[1] Swedish Civil Contingencies Agency. "Verktyg & tjänster". [https://www.msb.se/sv/verktyg--tjanster/] Accessed 27 January 2021
[2] Public Health Agency. 2020. "Krisberedskap". [https://www.folkhalsomyndigheten.se/smittskydd-beredskap/krisberedskap/] Accessed 17 January 2021
[3] Public Health Agency. 2018. "Tjänsteman i beredskap". [https://www.folkhalsomyndigheten.se/om-folkhalsomyndigheten/kontakta-oss/tjansteman-i-beredskap/] Accessed 17 January 2021

3.3.1b

Is the Emergency Operations Center (EOC) required to conduct a drill for a public health emergency scenario at least once per year or is there evidence that they conduct a drill at least once per year?

Yes = 1 , No = 0

Current Year Score: 0

There is no public evidence to confirm that the Emergency Operations Centre (EOC) is required to conduct at least one drill per year or that it conducts a drill once a year. The Swedish Civil Contingencies Agency (MSB) does not have any publicly

available information that describes the requirement for EOCs to conduct annual drills. [1] The Public Health Agency of Sweden (PHA, Folkhälsomyndigheten) does not have any publicly available information that describes the requirement for EOCs to conduct annual drills.[2] Annual reports for both agencies do not contain information about requirements for annual emergency drills. [3,4] The WHO and the United Nations Office for Disaster Risk Reduction (Sendai framework) do not have information about this. [5,6]

[1] Swedish Civil Contingencies Agency. "Verktyg & tjänster". [https://www.msb.se/sv/verktyg--tjanster/] Accessed 27 January 2021
[2] Public Health Agency. 2020. "Krisberedskap". [https://www.folkhalsomyndigheten.se/smittskydd-beredskap/krisberedskap/] Accessed 17 January 2021
[3] Swedish Civil Contingencies Agency. "Årsrapport". [https://www.msb.se/sv/publikationer/arsrapport-it-incidentrapportering-2019--vad-har-hant-varfor-har-det-hant-och-vad-ska-goras-for-att-undvika-att-det-hander-igen/] Accessed 27 January 2021
[4] Public Health Agency. "Folkhälsans utveckling". [https://www.folkhalsomyndigheten.se/folkhalsorapportering-statistik/tolkad-rapportering/arsrapporter-anmalningspliktiga-sjukdomar/arsrapporter-2019/] Accessed 27 January 2021
[5] WHO. "Sweden". [http://www.euro.who.int/en/countries/Sweden] Accessed 27 January 2021
[6] UNISDR. "Sweden". [https://www.unisdr.org/partners/countries/swe] Accessed 27 January 2021

3.3.1c

Is there public evidence to show that the Emergency Operations Center (EOC) has conducted within the last year a coordinated emergency response or emergency response exercise activated within 120 minutes of the identification of the public health emergency/scenario?

Yes = 1 , No = 0

Current Year Score: 0

There is no public information that the Emergency Operations Centre (EOC) can conduct, or has conducted within the last year, a coordinated emergency response or emergency response exercise activated within 120 minutes of the identification of the public health emergency/scenario. The Swedish Civil Contingencies Agency (MSB) does not have any publicly available information that describes the requirement for EOCs to conduct annual drills within a set time limit. [1] The Public Health Agency of Sweden (PHA, Folkhälsomyndigheten) does not have any publicly available information that describes the requirement for EOCs to conduct annual drills within a set time limit. [2] Annual reports from the MSB and PHA do not have information about this. [3,4] The WHO and the United Nations Office for Disaster Risk Reduction (Sendai framework) do not have information about this. [5,6]

[1] Swedish Civil Contingencies Agency. "Verktyg & tjänster". [https://www.msb.se/sv/verktyg--tjanster/] Accessed 27 January 2021
[2] Public Health Agency. 2020. "Krisberedskap". [https://www.folkhalsomyndigheten.se/smittskydd-beredskap/krisberedskap/] Accessed 17 January 2021
[3] Swedish Civil Contingencies Agency. "Årsrapport". [https://www.msb.se/sv/publikationer/arsrapport-it-incidentrapportering-2019--vad-har-hant-varfor-har-det-hant-och-vad-ska-goras-for-att-undvika-att-det-hander-igen/] Accessed 27 January 2021
[4] Public Health Agency. "Folkhälsans utveckling". [https://www.folkhalsomyndigheten.se/folkhalsorapportering-statistik/tolkad-rapportering/arsrapporter-anmalningspliktiga-sjukdomar/arsrapporter-2019/] Accessed 27 January 2021
[5] WHO. "Sweden". [http://www.euro.who.int/en/countries/Sweden] Accessed 27 January 2021
[6] UNISDR. "Sweden". [https://www.unisdr.org/partners/countries/swe] Accessed 27 January 2021

3.4 LINKING PUBLIC HEALTH AND SECURITY AUTHORITIES

3.4.1 Public health and security authorities are linked for rapid response during a biological event

3.4.1a

Does the country meet one of the following criteria?
- Is there public evidence that public health and national security authorities have carried out an exercise to respond to a potential deliberate biological event (i.e., bioterrorism attack)?
- Are there publicly available standard operating procedures, guidelines, memorandums of understanding (MOUs), or other agreements between the public health and security authorities to respond to a potential deliberate biological event (i.e., bioterrorism attack)?

Needs to meet at least one of the criteria to be scored a 1 on this measure., Yes for both = 1, Yes for one = 1, No for both = 0

Current Year Score: 0

There is no public evidence that public health and national security authorities have carried out an exercise to respond to a potential deliberate biological event (i.e. bioterrorism attack), however, there is insufficient evidence of standard operating procedures between the public health and security authorities to respond to a potential deliberate biological event (i.e. bioterrorism attack). The seven national authorities that have sector responsibility for biological threats have developed a needs analysis process that is available online. The needs analysis process was developed by the Public Health Agency (PHA), Board of Agriculture, National Food Agency, Swedish Civil Contingencies Agency (MSB), National Board of Health and Welfare, National Veterinary Institute (SVA), and the Defence Research Agency (FOI). The goal of the analysis is to strengthen the national emergency preparedness capability for responses to chemical, biological, radiological, nuclear and explosive substances (CBRNE). [1] The Swedish Civil Contingencies Agency also refers to the same strategy and held a meeting in January 2019 to present CBRNE issues. [2,3] Websites for the Public Health Agency (PHA), Board of Agriculture, National Food Agency, Swedish Civil Contingencies Agency (MSB), National Board of Health and Welfare, National Veterinary Institute (SVA), and the Defence Research Agency (FOI) do not have information about carrying out exercises to test responses to a bioterrorism attack. [4,5,6,7,8,9,10]

[1] Public Health Agency. 2020. "B-samordning". [https://www.folkhalsomyndigheten.se/smittskydd-beredskap/krisberedskap/samordning-infor-och-vid-kris/b-samordning/] Accessed 27 January 2021
[2] Swedish Civil Contingencies Agency. "Aktörsgemensam CBRNE-strategi". [https://www.msb.se/sv/publikationer/aktorsgemensam-cbrne-strategi/]
[3] Swedish Civil Contingencies Agency. "Samordning CBRNE". [https://www.msb.se/CBRNE] Accessed 27 January 2021
[4] Public Health Agency. "Homepage". [https://www.folkhalsomyndigheten.se/] Accessed 27 January 2021
[5] Board of Agriculture. "Homepage". [http://www.jordbruksverket.se/] Accessed 27 January 2021
[6] National Food Agency. "Homepage". [https://www.livsmedelsverket.se/en] Accessed 27 January 2021
[7] Swedish Civil Contingencies Agency (MSB). "Homepage". [https://www.msb.se/sv/] Accessed 27 January 2021
[8] National Board of Health and Welfare. "Homepage". [https://www.socialstyrelsen.se/] Accessed 27 January 2021
[9] National Veterinary Institute (SVA). "Homepage". [https://www.sva.se/] Accessed 27 January 2021
[10] Defense Research Agency (FOI). "Homepage". [https://www.foi.se/] Accessed 27 January 2021

3.5 RISK COMMUNICATIONS

3.5.1 Public communication

3.5.1b

Does the risk communication plan (or other legislation, regulation or strategy document used to guide national public health response) outline how messages will reach populations and sectors with different communications needs (eg different languages, location within the country, media reach)?

Yes = 1 , No = 0

Current Year Score: 0

There is insufficient evidence to conclude that Sweden's communication plan during a health emergency reaches populations and sectors with different communications needs (e.g. different languages, location within country, media reach, etc). The Public Health Agency (PHA, Folkhälsomyndigheten) describes at a high level its crisis communication and press management in the section of its website on emergency preparedness, but it does not specifically address how information reaches people with different communication needs. [1] The Swedish Civil Contingencies Agency (MSB) confirms in a 2017 report on the Sendai Framework that multisectoral risk communications plans are in place and tailored to meet the needs of users, but does not describe how it meets users' needs. [2] There is no additional evidence from the MSB or the public health system, which does have general health information in other languages. [3,4] The Public Health Authority does not have additional information. [5]

[1] Public Health Agency. 2020. "Krisberedskap". [https://www.folkhalsomyndigheten.se/smittskydd-beredskap/krisberedskap/] Accessed 27 January 2021
[2] Swedish Civil Contingencies Agency. 2017. "Sendai Framework for Disaster Risk Reduction 2015 - 2030". [https://rib.msb.se/Filer/pdf/28982.pdf] Accessed 27 January 2021
[3] Swedish Civil Contingencies Agency. "Homepage". [https://www.msb.se/] Accessed 27 January 2021
[4] 1177 Vårdguiden. "Other languages". [https://www.1177.se/Other-languages/] Accessed 27 January 2021
[5] Public Health Authority. "Hälsokommunikation i det nya medielandskapet". [https://www.folkhalsomyndigheten.se/publicerat-material/publikationsarkiv/h/halsokommunikation-i-det-nya-medielandskapet/] Accessed 27 January 2021

3.5.1 Risk communication planning

3.5.1a

Does the country have in place, either in the national public health emergency response plan or in other legislation, regulation, or strategy documents, a section detailing a risk communication plan that is specifically intended for use during a public health emergency?

Yes = 1 , No = 0

Current Year Score: 1

There is a communication plan designed specifically for use during a public health emergency. Specifically, the Public Health Agency (PHA, Folkhälsomyndigheten) has capacity for crisis communication and press management that it describes in the section of its website on emergency preparedness. [1] According to the PHA, preparedness for crisis communication is ready at any time, 24 hours a day, but the actual plan is not available online. [1] The Swedish Civil Contingencies Agency (MSB) confirms in a 2017 report on the Sendai Framework that multisectoral risk communications plans are in place and tailored to meet the needs of users. [2] The PHA also has a specific pandemic communication plan that documents the procedures for

communication during the outbreak of an influenza pandemic. [3] The Swedish Civil Contingencies Agency (MSB) is also responsible for the Important Notice to the Public System (VMA, Viktigt Meddelande till Allmänheten), which is used in accidents and emergencies to provide crisis management. [4]

[1] Public Health Agency. 2020. "Krisberedskap". [https://www.folkhalsomyndigheten.se/smittskydd-beredskap/krisberedskap/] Accessed 27 January 2021
[2] Swedish Civil Contingencies Agency. 2017. "Sendai Framework for Disaster Risk Reduction 2015 - 2030". [https://rib.msb.se/Filer/pdf/28982.pdf] Accessed 27 January 2021
[3] Public Health Agency. 19 November 2015. "Pandemiberedskap. Hur vi kommunicerar - ett kunskapsunderlag". [https://www.folkhalsomyndigheten.se/publicerat-material/publikationsarkiv/p/pandemiberedskap-hur-vi-kommunicerar-ett-kunskapsunderlag/] Accessed 27 January 2021
[4] Swedish Civil Contingencies Agency. "VMA - Viktigt meddelande till allmänheten". [https://www.msb.se/vma] Accessed 27 January 2021

3.5.1c

Does the risk communication plan (or other legislation, regulation or strategy document used to guide national public health response) designate a specific position within the government to serve as the primary spokesperson to the public during a public health emergency?

Yes = 1 , No = 0

Current Year Score: 0

There is insufficient evidence to conclude that Sweden's communication plan designates a specific position within the government to serve as the primary spokesperson to the public during a public health emergency. The Public Health Agency (PHA, Folkhälsomyndigheten) describes at a high level its crisis communication and press management in the section of its website on emergency preparedness, but it does not specifically name a position in charge of communication. [1] The Swedish Civil Contingencies Agency (MSB) confirms in a 2017 report on the Sendai Framework that multisectoral risk communications plans are in place and tailored to meet the needs of users, but does not address this. [2] There is no additional evidence from the MSB or the public health system, which does have general health information in other languages. [3,4] The Public Health Authority does not have additional information. [5]

[1] Public Health Agency. "Krisberedskap". [https://www.folkhalsomyndigheten.se/smittskydd-beredskap/krisberedskap/] Accessed 27 January 2021
[2] Swedish Civil Contingencies Agency. 2017. "Sendai Framework for Disaster Risk Reduction 2015 - 2030". [https://rib.msb.se/Filer/pdf/28982.pdf] Accessed 27 January 2021
[3] Swedish Civil Contingencies Agency. "Homepage". [https://www.msb.se/] Accessed 27 January 2021
[4] 1177 Vårdguiden. "Other languages". [https://www.1177.se/Other-languages/] Accessed 27 January 2021
[5] Public Health Authority. "Hälsokommunikation i det nya medielandskapet". [https://www.folkhalsomyndigheten.se/publicerat-material/publikationsarkiv/h/halsokommunikation-i-det-nya-medielandskapet/] Accessed 27 January 2021

3.5.2 Public communication

3.5.2a

In the past year, is there evidence that the public health system has actively shared messages via online media platforms (e.g. social media, website) to inform the public about ongoing public health concerns and/or dispel rumors, misinformation or disinformation?

Public health system regularly shares information on health concerns = 2, Public health system shares information only during active emergencies, but does not regularly utilize online media platforms = 1, Public health system does not regularly utilize online media platforms, either during emergencies or otherwise = 0

Current Year Score: 2

There is evidence that the government utilizes media platforms (social media, website updates, etc.) to inform the public about public health emergencies. The Public Health Authority has a website that is dedicated to information about the COVID-19 pandemic. The website has information on several topics including recommendations, vaccinations, testing and medical supplies. Information is updated regularly. For example, positive cases, deaths and number of cases in intensive care are updated daily. [1] The PHA also uses Facebook, Twitter and YouTube to share general health information as well as information on COVID-19. [2] For example, the Facebook page has information about a recent health survey conducted in 2020 [3].

[1] Public Health Agency. 2021. "COVID-19". [https://www.folkhalsomyndigheten.se/smittskydd-beredskap/utbrott/aktuella-utbrott/covid-19/] Accessed 27 January 2021
[2] Public Health Agency. "Följ oss i sociala medier". [https://www.folkhalsomyndigheten.se/nyheter-och-press/sociala-medier/] Accessed 27 January 2021
[3] Public Health Agency. 2020. "Nationella folkhälsoenkäten". [https://www.facebook.com/Folkhalsomyndigheten/videos/181642070269771/] Accessed February 2021.

3.5.2b

Is there evidence that senior leaders (president or ministers) have shared misinformation or disinformation on infectious diseases in the past two years?

No = 1, Yes = 0

Current Year Score: 1

There is no evidence that senior leaders (president or ministers) have shared misinformation or disinformation on infectious diseases in the past two years. Websites for the Public Health Authority, Board of Agriculture, Ministry of Defence and Ministry of Education and Research do not have information about this. [1,2,3,4] Two of the largest newspapers in Sweden, Dagens Nyheter and Aftonbladet, have not reported on this. [5,6] An online search did not yield any results.

[1] Board of Agriculture. "Jordsbrukverket". [http://www.jordbruksverket.se/] Accessed 19 January 2021
[2] Ministry of Defence. "Ministry of Defence". [https://www.government.se/government-of-sweden/ministry-of-defence/] Accessed 19 January 2021
[3] Ministry of Education and Research. Ministry of Education and Research. [https://www.government.se/government-of-sweden/ministry-of-education-and-research/] Accessed 19 January 2021
[4] Public Health Authority. "Smittskydd & beredskap". [https://www.folkhalsomyndigheten.se/smittskydd-beredskap/] Accessed 19 January 2021
[5] Dagen Nyheter. [https://www.dn.se/] Accessed 27 January 2021

[6] Aftonbladet. [https://www.aftonbladet.se/] Accessed 27 January 2021.

3.6 ACCESS TO COMMUNICATIONS INFRASTRUCTURE

3.6.1 Internet users

3.6.1a

Percentage of households with Internet

Input number

Current Year Score: 94.49

2019

International Telecommunication Union (ITU)

3.6.2 Mobile subscribers

3.6.2a

Mobile-cellular telephone subscriptions per 100 inhabitants

Input number

Current Year Score: 126.32

2019

International Telecommunication Union (ITU)

3.6.3 Female access to a mobile phone

3.6.3a

Percentage point gap between males and females whose home has access to a mobile phone

Input number

Current Year Score: 0

2019

Gallup; Economist Impact calculation

3.6.4 Female access to the Internet

3.6.4a

Percentage point gap between males and females whose home has access to the Internet

Input number

Current Year Score: 2.0

2019

Gallup; Economist Impact calculation

3.7 TRADE AND TRAVEL RESTRICTIONS

3.7.1 Trade restrictions

3.7.1a

In the past year, has the country issued a restriction, without international/bilateral support, on the export/import of medical goods (e.g. medicines, oxygen, medical supplies, PPE) due to an infectious disease outbreak?

Yes = 0 , No = 1

Current Year Score: 0

There is evidence that Sweden, in the past year, has issued a restriction, without international/bilateral support, on the export/import of medical goods (e.g. medicines, oxygen, medical supplies, PPE) due to an infectious disease outbreak. On 14 March 2020, in light of the pandemic, the European Union (EU), of which Sweden is a member, adopted Regulation 2020/402, under which special authorization was required to export personal protective equipment (masks, gloves, goggles, face shields and overalls) out of the EU. [1] On 23 April 2020 this was superseded by a new regulation, numbered 2020/568, under which authorization was required to export personal protective equipment out of the EU, except to Albania, Andorra, Bosnia, the Faroe Islands, Gibraltar, Iceland, Kosovo, Liechtenstein, Montenegro, Norway, North Macedonia, San Marino, Serbia and Switzerland. [2] However, websites for the Public Health Authority, Board of Agriculture, Ministry of Defence and Ministry of Foreign Affairs do not have information about restrictions on the import or export of medical goods in the last year due to an infectious outbreak in the last year. [3, 4, 5, 6] Two of the largest newspapers in the country, Dagens Nyheter and Aftonbladet, do not have information about this. [7, 8]

[1] Euopean Commission. Commission Implementing Regulation (EU) 2020/402 of 14 March 2020. "Making the exportation of certain products subject to the production of an export authorisation." [https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:32020R0402]. Accessed 7 August 2020.
[2] Euopean Commission. Commission Implementing Regulation (EU) 2020/568 of 23 April 2020. "Making the exportation of certain products subject to the production of an export authorisation." [https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A32020R0568]. Accessed 7 August 2020.
[3] Public Health Authority. "Smittskydd & beredskap". [https://www.folkhalsomyndigheten.se/smittskydd-beredskap/] Accessed 19 January 2021
[4] Board of Agriculture. "Jordsbrukverket". [http://www.jordbruksverket.se/] Accessed 19 January 2021
[5] Ministry of Defence. "Ministry of Defence". [https://www.government.se/government-of-sweden/ministry-of-defence/] Accessed 19 January 2021
[6] Ministry of Foreign Affairs. [https://www.government.se/government-of-sweden/ministry-for-foreign-affairs/] Accessed 28 January 2021
[7] Dagens Nyheter. [https://www.dn.se/] Accessed 28 January 2021
[8] Aftonbladet. [https://www.aftonbladet.se/] Accessed 28 January 2021

3.7.1b

In the past year, has the country issued a restriction, without international/bilateral support, on the export/import of non-medical goods (e.g. food, textiles, etc) due to an infectious disease outbreak?

Yes = 0 , No = 1

Current Year Score: 1

Sweden has not issued a restriction, without international/bilateral support, on the export/import of non-medical goods (e.g. food, textiles, etc.) due to an infectious disease outbreak in the last year. Websites for the Public Health Authority, Board of Agriculture, Ministry of Defence and Ministry of Foreign Affairs do not have information about restrictions on the import or export of non-medical goods in the last year due to an infectious outbreak in the last year. [1,2,3,4] Two of the largest newspapers in the country, Dagens Nyheter and Aftonbladet, do not have information about this. [5,6]

[1] Public Health Authority. "Smittskydd & beredskap". [https://www.folkhalsomyndigheten.se/smittskydd-beredskap/] Accessed 19 January 2021
[2] Board of Agriculture. "Jordsbrukverket". [http://www.jordbruksverket.se/] Accessed 19 January 2021
[3] Ministry of Defence. "Ministry of Defence". [https://www.government.se/government-of-sweden/ministry-of-defence/] Accessed 19 January 2021
[4] Ministry of Foreign Affairs. [https://www.government.se/government-of-sweden/ministry-for-foreign-affairs/] Accessed 28 January 2021
[5] Dagens Nyheter. [https://www.dn.se/] Accessed 28 January 2021
[6] Aftonbladet. [https://www.aftonbladet.se/] Accessed 28 January 2021

3.7.2 Travel restrictions

3.7.2a

In the past year, has the country implemented a ban, without international/bilateral support, on travelers arriving from a specific country or countries due to an infectious disease outbreak?

Yes = 0 , No = 1

Current Year Score: 0

Sweden has implemented a ban, without international/bilateral support, on travelers arriving from a specific country or countries due to an infectious disease outbreak in the past year. In March 2020, Swedish Government issued a restriction on all "non-essential travels to Sweden across an external border, meaning from other countries than the EU/EEA [European Econonmic Area], except Switzerland and other select countries. As of January 2021, the travel ban is in effect until March 31, 2021. [1] In December 2020, the Swedish government extended the restriction to travelers from Denmark, Norway and UK in order to reduce and prevent the spread of a new variant of the COVID-19 virus. As of January 2021, the travel ban is in effect until February 14, 2021. [1]

[1] Polisen. 2021. Travel to Sweden from outside EU during the corona outbreak (updated 2021-01-24). [https://polisen.se/en/the-swedish-police/the-coronavirus-and-the-swedish-police/travel-to-and-from-sweden/] Accessed 28 January 2021

Category 4: Sufficient and robust health sector to treat the sick and protect health workers

4.1 HEALTH CAPACITY IN CLINICS, HOSPITALS, AND COMMUNITY CARE CENTERS

4.1.1 Available human resources for the broader healthcare system

4.1.1a

Doctors per 100,000 people

Input number

Current Year Score: 398.4

2016

WHO; national sources

4.1.1b

Nurses and midwives per 100,000 people

Input number

Current Year Score: 1181.64

2017

WHO; national sources

4.1.1c

Does the country have a health workforce strategy in place (which has been updated in the past five years) to identify fields where there is an insufficient workforce and strategies to address these shortcomings?

Yes = 1 , No = 0

Current Year Score: 0

There is no public evidence that Sweden has a comprehensive public workforce strategy in place (which has been updated in the past five years) to identify fields where there is an insufficient workforce and strategies to address these shortcomings. The national statistics agency, Statistics Sweden (Statistikmyndigheten, SCB) studies trends in education and presents long-term forecasts of supply and demand for labour for different educational groups, but there are no plans for addressing supply and demand. [1] The Swedish Migration Agency (Migrationsverket) works with the Employment Service (Arbetsförmedlingen) and SCB to publish a labour shortage list. The list is developed in consultation with associations of employers and employees and is updated regularly. [2] The most recent list from April 2018 shows that there is demand for pharmacists, midwives, doctors, dentists and veterinarians. [3] The websites for SCB, the Migration Agency, the Employment Service, the Ministry of Education and Research, Ministry of Health and Social Affairs, and Ministry of Employment do not

have any additional information about plans to address labour shortages. [1,3,4,5,6,7]

[1] Statistics Sweden. "Tilltagande brist på lärare och specialistsjuksköterskor". [https://www.scb.se/hitta-statistik/statistik-efter-amne/utbildning-och-forskning/analyser-och-prognoser-om-utbildning-och-arbetsmarknad/trender-och-prognoser-om-utbildning-och-arbetsmarknad/pong/statistiknyhet/trender-och-prognoser-2017/] Accessed 28 January 2021
[2] Government of Sweden. "Finding a job in Sweden". [https://sweden.se/society/finding-a-job-in-sweden/] Accessed 28 January 2021
[3] Swedish Migration Agency. "If you have visited an employer in Sweden and want to apply for a work permit", [https://www.migrationsverket.se/English/Private-individuals/Working-in-Sweden/Employed/If-you-are-in-Sweden/Visiting-an-employer.html] Accessed 28 January 2021
[4] Employment Service. "Fortsatt stark arbetsmarknad". [https://arbetsformedlingen.se/om-oss/press/pressmeddelanden?id=ECD3F2472FC801CF] Accessed 28 January 2021
[5] Ministry of Health and Social Affairs. "Ministry of Health and Social Affairs". [https://www.government.se/government-of-sweden/ministry-of-health-and-social-affairs/] Accessed 28 January 2021
[6] Ministry of Education and Research. "Ministry of Education and Research". [https://www.government.se/government-of-sweden/ministry-of-education-and-research/] Accessed 28 January 2021
[7] Ministry of Employment. "Ministry of Employment"'. [https://www.government.se/government-of-sweden/ministry-of-employment/] Accessed 28 January 2021

4.1.2 Facilities capacity

4.1.2a

Hospital beds per 100,000 people

Input number

Current Year Score: 214

2018

WHO/World Bank; national sources

4.1.2b

Does the country have the capacity to isolate patients with highly communicable diseases in a biocontainment patient care unit and/or patient isolation room/unit located within the country?

Yes = 1 , No = 0

Current Year Score: 1

Sweden has the capacity to isolate patients with highly communicable diseases in a biocontainment patient care unit and/or patient isolation facility located within the country. The Public Health Agency does not have list of isolation units in the country, but it does describe the use of isolation rooms to treat infectious diseases such as Nipah virus and Ebola. [1,2] Use of patient isolation is also described in the Communicable Disease Act of 2004. [3] The Infectious Diseases Departments in hospitals such as Huddinge and Skane have isolation rooms to treat patients with highly infectious diseases. The Huddinge unit confirms the use of personal protective equipment, as well as units constructed with separate entrances and exits for medical staff to safely don and dispose of the PPE. [4] The Linkoping University Hospital has isolation facilities which are confirmed to have private bathrooms, negative air pressure, separate entrances and exits, among other features to safely

isolate and treat patients. [6]

[1] Public Health Agency. "Sjukdomsinformation om nipahvirus". [https://www.folkhalsomyndigheten.se/smittskydd-beredskap/smittsamma-sjukdomar/nipahvirus/] Accessed 28 January 2021
[2] Public Health Agency. "Sjukdomsinformation om ebolavirusinfektion". [https://www.folkhalsomyndigheten.se/smittskydd-beredskap/smittsamma-sjukdomar/ebola/] Accessed 28 January 2021
[3] Government of Sweden. 2004. "Smittskyddslag (2004:168)". [http://www.riksdagen.se/sv/dokument-lagar/dokument/svensk-forfattningssamling/smittskyddslag-2004168_sfs-2004-168] Accessed 28 January 2021
[4] Skånes universitetssjukhus. "Infektionssjukdomar". [https://vard.skane.se/skanes-universitetssjukhus-sus/om-oss/specialistomraden/infektionssjukdomar/] Accessed 28 January 2021
[5] Fusco, et al. 2009. "EuroNHID checklists for the assessment of high-level isolation units and referral centres for highly infectious diseases: results from the pilot phase of a European survey". Clinical Microbiology and Infection. [https://www.sciencedirect.com/science/article/pii/S1198743X14604560]. Accessed 28 January 2021

4.1.2c

Does the country meet one of the following criteria?
- Is there evidence that the country has demonstrated capacity to expand isolation capacity in response to an infectious disease outbreak in the past two years?
- Is there evidence that the country has developed, updated or tested a plan to expand isolation capacity in response to an infectious disease outbreak in the past two years?
Yes = 1, No = 0

Current Year Score: 0

There is insufficient evidence that Sweden has demonstrated capacity to expand isolation capacity or developed, updated or tested a plan to expand isolation capacity in response to an infectious disease outbreak in the past two years. The Public Health Agency does not have list of isolation units in the country, but it does describe the use of isolation rooms to treat infectious diseases such as Nipah virus and Ebola. [1,2] Use of patient isolation is also described in the Communicable Disease Act of 2004, but it does not include information about expanding isolation capacity in response to an infectious disease outbreak. [3] The website for the Public Health Agency has a section on crisis preparedness that states that it conducts external monitoring and can initiate early action if something serious happens within the authority's area of responsibility. However, there is no mention of plans to increase isolation capacity. [4]

[1] Public Health Agency. “Sjukdomsinformation om nipahvirus”. [https://www.folkhalsomyndigheten.se/smittskydd-beredskap/smittsamma-sjukdomar/nipahvirus/] Accessed 28 January 2021
[2] Public Health Agency. “Sjukdomsinformation om ebolavirusinfektion”. [https://www.folkhalsomyndigheten.se/smittskydd-beredskap/smittsamma-sjukdomar/ebola/] Accessed 28 January 2021
[3] Government of Sweden. 2004. “Smittskyddslag (2004:168)”. [http://www.riksdagen.se/sv/dokument-lagar/dokument/svensk-forfattningssamling/smittskyddslag-2004168_sfs-2004-168] Accessed 28 January 2021
[4] Public Health Agencycy. “Krisisbereskap”. [https://www.folkhalsomyndigheten.se/smittskydd-beredskap/krisberedskap/] Accessed 9 May 2021.

4.2 SUPPLY CHAIN FOR HEALTH SYSTEM AND HEALTHCARE WORKERS

4.2.1 Routine health care and laboratory system supply

4.2.1a

Is there a national procurement protocol in place which can be utilized by the Ministries of Health and Agriculture for the acquisition of laboratory supplies (e.g. equipment, reagents and media) and medical supplies (e.g. equipment, PPE) for routine needs?

Yes for both laboratory and medical supply needs = 2, Yes, but only for one = 1, No = 0

Current Year Score: 2

There is a national procurement protocol in place which can be utilized by the Ministries of Health and Agriculture for the acquisition of laboratory supplies (e.g. equipment, reagents and media) and medical supplies (e.g. equipment, PPE) for routine needs. As a member of the European Union (EU), Swedish legislation on procurement follows EU directives and primary law. Generally, procurement by public authorities is regulated in the Public Procurement Act, the Utilities Procurement Act, the Act on Procurement of Concessions, and the Defence and Security Procurement Act, and thus applies to procurements of medical and laboratory supplies by public authorities. [1] The National Agency for Public Procurement (NAPP, Upphandlingsmyndigheten) provides support for public procurements. The NAPP works with public authorities, suppliers and other public procurement actors; it is also responsible for developing, administering and supporting procurements conducted by the contracting authorities and units. [1,2] The Swedish Competition Authority (Konkurrensverket) is the supervisory authority for public procurement. [3] The Board of Agriculture has a website that confirms that all purchasing is done in accordance with the Law on Public Procurement. [4] The Public Health Authority also confirms that it works with NAPP and the Swedish Competition Authority to acquire laboratory and medical supplies. [5]

[1] Government of Sweden. 2018. "Public procurement - How it works in Sweden". [https://www.government.se/government-policy/central-government-adminstration/public-procurement---how-it-works-in-sweden/] Accessed 28 January 2021.
[2] National Agency for Public Procurement. November 2014. "Inkopsprocessen". [https://www.upphandlingsmyndigheten.se/inkopsprocessen/] Accessed 28 January 2021
[3] Swedish Competition Authority. "Om Konkurrensverket". [http://www.konkurrensverket.se/omossmeny/om-oss/] Accessed 28 January 2021
[4] Board of Agriculture. "Om offentliga upphandlingar". [https://jordbruksverket.se/om-jordbruksverket/upphandlingar] Accessed 28 January 2021
[5] Public Health Authority. 24 August 2018. "Upphandling". [https://www.folkhalsomyndigheten.se/om-folkhalsomyndigheten/upphandlingar-och-avrop/] Accessed 28 January 2021

4.2.2 Stockpiling for emergencies

4.2.2a

Does the country have a stockpile of medical supplies (e.g. MCMs, medicines, vaccines, medical equipment, PPE) for national use during a public health emergency?

Yes = 2, Yes, but there is limited evidence about what the stockpile contains = 1, No = 0

Current Year Score: 2

There is evidence that Sweden has a stockpile of medical supplies for national use during a public health emergency, which includes essential medicines. The Public Health Agency (PHA) is responsible for medical countermeasure during a crisis. Its website describes plans for medicine stocks in emergencies ("Smittskyddsläkemedel i beredskapslager"). According to the plan, both the PHA as well as local government councils are responsible for stockpiling antiviral drugs and antibiotics for potential influenza pandemic or major outbreaks of infectious diseases. Specifically, the PHA and government councils keep stockpiles of oseltamivir (in three different strengths) and zanamivir. [1] The national government also has agreements with five companies to produce certain drugs in emergencies. The plan also provides guidance for emergency preparedness coordinators and disease control physicians regarding the preparations that need to be made in order to request and manage medicines during a pandemic. [1]

[1] Public Health Agency. "Smittskyddsläkemedel i beredskapslager". [https://www.folkhalsomyndigheten.se/smittskydd-beredskap/krisberedskap/smittskyddslakemedel-i-beredskapslager/] Accessed 9 May 2021

4.2.2b

Does the country have a stockpile of laboratory supplies (e.g. reagents, media) for national use during a public health emergency?

Yes = 2, Yes, but there is limited evidence about what the stockpile contains = 1, No = 0

Current Year Score: 0

There is insufficient evidence that Sweden has a stockpile of laboratory supplies (e.g. reagents, media) for national use during a public health emergency. The Public Health Authority has a site that describes emergency preparedness measures that include coordination of stakeholders and stockpiling medicinal products (e.g. antivirals), but there is no information about stockpiles of laboratory supplies. [1] Websites for the Ministry of Defence, Swedish Security Service, Public Health Authority, Swedish Medical Products Agency, Swedish Civil Contingencies Agency do not have information about this. [2,3,4,5,6]

[1] Public Health Authortity. Krisberedskap. [https://www.folkhalsomyndigheten.se/smittskydd-beredskap/krisberedskap/] Accessed 28 January 2021
[2] Ministry of Defence. "Ministry of Defence". [https://www.government.se/government-of-sweden/ministry-of-defence/] Accessed 19 January 2021
[3] Swedish Security Service. [https://www.government.se/government-agencies/swedish-security-service/] Accessed 28 January 2021
[4] Public Health Authority. [https://www.folkhalsomyndigheten.se/] Accessed 28 January 2021
[5] Swedish Medical Products Agency. [https://www.lakemedelsverket.se/en] Accessed 28 January 2021
[6] Swedish Civil Contingences Agency. [https://www.msb.se/en/] Accessed 28 January 2021

4.2.2c

Is there evidence that the country conducts or requires an annual review of the national stockpile to ensure the supply is sufficient for a public health emergency?

Yes = 1, No = 0

Current Year Score: 0

There is insufficient evidence that Sweden conducts or requires an annual review of the national stockpile to ensure the supply is sufficient for a public health emergency. The Public Health Agency (PHA) as well as local government councils are responsible for stockpiling antiviral drugs and antibiotics for potential influenza pandemic or major outbreaks of infectious diseases. Specifically, the PHA and government councils keep stockpiles of oseltamivir (in three different strengths) and

zanamivir. [1] The PHA notes that it aims to update the stock on a regular basis to reflect changing needs that can occur due to resistance development or new antibiotics and antivirals ("Målsättningen är att uppdatera lagret regelbundet utifrån att behovet av antibiotika kan förändras till följd av bland annat resistensutveckling och utvecklingen av nya antibiotika."). However, there is no specific requirement for an annual review of the national stockpile. [1]

[1] Public Health Agency. "Smittskyddsläkemedel i beredskapslager". [https://www.folkhalsomyndigheten.se/smittskydd-beredskap/krisberedskap/smittskyddslakemedel-i-beredskapslager/] Accessed 9 May 2021

4.2.3 Manufacturing and procurement for emergencies

4.2.3a

Does the country meet one of the following criteria?
- Is there evidence of a plan/agreement to leverage domestic manufacturing capacity to produce medical supplies (e.g. MCMs, medicines, vaccines, equipment, PPE) for national use during a public health emergency?
- Is there evidence of a plan/mechanism to procure medical supplies (e.g. MCMs, medicines, vaccines, equipment, PPE) for national use during a public health emergency?
Needs to meet at least one of the criteria to be scored a 1 on this measure., Yes for both = 1, Yes for one = 1, No for both = 0

Current Year Score: 1

There is insufficient evidence that Sweden has plans to procure medical supplies during a public health emergency; however there are plans to produce medical supplies during a public health emergency. The Public Health Authority has a site that describes emergency preparedness measures that include coordination of stakeholders and stockpiling medicinal products (e.g. antivirals), but there is no information about procuring or producing medical supplies. [1] Although there no agreements for medical supplies, the national government has agreements with five companies to produce both parenteral and oral antibiotics for preparedness purposes. The medicines are owned by the pharmaceutical companies, but the Public Health Agency of Sweden has full disposition rights to the warehouse. [1] Websites for the Ministry of Defence, Swedish Security Service, Public Health Authority, Swedish Medical Products Agency and Swedish Civil Contingencies Agency do not have information about medical supplies or countermeasures. [2,3,4,5,6] A news article from June 2020 noted severe shortages of PPE during the COVID-19 pandemic as some municipalities were not able to order additional supplies. [7]

Sweden has been part of the European Union (EU) Joint Procurement Agreement for Medical Countermeasures, which ensures that member states have access to medical countermeasures from abroad if necessary when a serious cross-border threat to health is registered. The agreement aims to "secure more equitable access to specific medical countermeasures and improved security of supply", as well as balancing prices for EU member states. It is also designed to ensure acquisition of vaccines, antivirals and medical countermeasures for serious cross-border threats to health [8].

[1] Public Health Authortity. Krisberedskap. [https://www.folkhalsomyndigheten.se/smittskydd-beredskap/krisberedskap/] Accessed 9 May 2021
[2] Ministry of Defence. "Ministry of Defence". [https://www.government.se/government-of-sweden/ministry-of-defence/] Accessed 19 January 2021
[3] Swedish Security Service. [https://www.government.se/government-agencies/swedish-security-service/] Accessed 28 January 2021
[4] Public Health Authority. [https://www.folkhalsomyndigheten.se/] Accessed 28 January 2021
[5] Swedish Medical Products Agency. [https://www.lakemedelsverket.se/en] Accessed 28 January 2021
[6] Swedish Civil Contingences Agency. [https://www.msb.se/en/] Accessed 28 January 2021
[7] Sweden Radio. Swedish municipalities stopped from buying PPE at height of corona pandemic.

[https://sverigesradio.se/artikel/7498390] Accessed 28 January 2021
[8] European Commission. "Joint Procurement Of Medical Countermeasures". [https://ec.europa.eu/health/preparedness_response/joint_procurement_en]. Accessed 3 September 2020

4.2.3b

Does the country meet one of the following criteria?
- Is there evidence of a plan/agreement to leverage domestic manufacturing capacity to produce laboratory supplies (e.g. reagents, media) for national use during a public health emergency?
- Is there evidence of a plan/mechanism to procure laboratory supplies (e.g. reagents, media) for national use during a public health emergency?
Needs to meet at least one of the criteria to be scored a 1 on this measure., Yes for both = 1, Yes for one = 1, No for both = 0

Current Year Score: 0

There is insufficient evidence that Sweden has plans to procure or leverage domestic manufacturing capacity to produce laboratory supplies during a public health emergency. The Public Health Authority has a site that describes emergency preparedness measures that include coordination of stakeholders and stockpiling medicinal products, but there is no information about procuring or manufacturing laboratory supplies. [1] Websites for the Ministry of Defence, Swedish Security Service, Public Health Authority, Swedish Medical Products Agency and Swedish Civil Contingencies Agency do not have information about this. [2,3,4,5,6]

[1] Public Health Authortity. Krisberedskap. [https://www.folkhalsomyndigheten.se/smittskydd-beredskap/krisberedskap/] Accessed 28 January 2021
[2] Ministry of Defence. "Ministry of Defence". [https://www.government.se/government-of-sweden/ministry-of-defence/] Accessed 19 January 2021
[3] Swedish Security Service. [https://www.government.se/government-agencies/swedish-security-service/] Accessed 28 January 2021
[4] Public Health Authority. [https://www.folkhalsomyndigheten.se/] Accessed 28 January 2021
[5] Swedish Medical Products Agency. [https://www.lakemedelsverket.se/en] Accessed 28 January 2021 Swedish Civil Contingences Agency. [https://www.msb.se/en/] Accessed 28 January 2021

4.3 MEDICAL COUNTERMEASURES AND PERSONNEL DEPLOYMENT

4.3.1 System for dispensing medical countermeasures (MCM) during a public health emergency

4.3.1a

Does the country have a plan, program, or guidelines in place for dispensing medical countermeasures (MCM) for national use during a public health emergency (i.e., antibiotics, vaccines, therapeutics and diagnostics)?
Yes = 1 , No = 0

Current Year Score: 1

Sweden has a plan in place for dispensing medical countermeasures for national use during a public health emergency (i.e. antibiotics, vaccines, therapeutics and diagnostics). The Public Health Agency (Folkhälsomyndigheten, PHA) is responsible for medical countermeasure during a crisis. The PHA issued in 2019 a document called "Pandemic preparedness. Access to and use of medicines - a guide" (Pandemiberedskap. Tillgång till och användning av läkemedel - en vägledning). The plan outlines

the medicinal products available for a pandemic, how they are made available and how to use them. It provides support for the regions' planning of how they can handle and implement medical countermeasures and a brief description of the roles and responsibilities of the national authorities involved. [1] The document describes which drugs, vaccines, therapeutics and diagnostics the PHA has in emergency preparedness stocks or has supply assignments for, and how these can be allocated during a medical emergency, both to central facilities and to reach individuals. For example, parenteral and oral antibiotics have been purchased for emergency preparedness and are regularly updated. The document also provides guidance for emergency preparedness coordinators and disease control physicians regarding the preparations that need to be made in order to request and manage medicines during a pandemic. [1] It indicates that requisition and distribution at the local level (eg to nursing units, home nursing teams, health centres) should follow the guidelines developed by the county council or region

[1] Public Health Agency. " Pandemiberedskap. Tillgång till och användning av läkemedel - en vägledning". [https://www.folkhalsomyndigheten.se/publicerat-material/publikationsarkiv/p/pandemiberedskap-tillgang-till-och-anvandning-av-lakemedel-en-vagledning/] Accessed 28 January 2021

4.3.2 System for receiving foreign health personnel during a public health emergency

4.3.2a

Is there a public plan in place to receive health personnel from other countries to respond to a public health emergency?
Yes = 1 , No = 0

Current Year Score: 0

There is insufficient evidence that Sweden has a public plan in place to receive health personnel from other countries to respond to a public health emergency. International cooperation is mentioned by the Public Health Agency (Folkhälsomyndigheten, PHA) in its description of emergency preparedness. Specifically, the PHA states, "Sweden has extensive international cooperation with other countries, the EU and the World Health Organization (WHO). The Public Health Authority is the national contact point with the EU and the WHO regarding cross-border health threats." However, the PHA does not describe how professionals would be received during an emergency. [1] The pandemic preparedness plan confirms plans to receive international health personnel during an emergency. Specifically, the plan states, "The handling of a pandemic will thus involve an intensive European consultation process and international cooperation for many of the national authorities. The authorities that participate in international work must include this in the planning for how large the human resources are needed to carry out the work during a pandemic." This plan also does not give more information. [2] Websites for the Ministry of Health and Social Affairs, Ministry of Defence, and Swedish Contingencies Agency do not have additional information about this. [3,4,5]

[1] Public Health Agency. "Krisberedskap". [https://www.folkhalsomyndigheten.se/smittskydd-beredskap/krisberedskap/] Accessed 28 January 2021
[2] Public Health Agency. "Pandemiberedskap". [https://www.folkhalsomyndigheten.se/smittskydd-beredskap/krisberedskap/pandemiberedskap/] Accessed 28 January 2021
[3] Ministry of Health and Social Affairs. "Ministry of Health and Social Affairs". [https://www.government.se/government-of-sweden/ministry-of-health-and-social-affairs/] Accessed 28 January 2021
[4] Ministry of Defence. "Ministry of Defence". [https://www.government.se/government-of-sweden/ministry-of-defence/] Accessed 28 January 2021
[5] Swedish Civil Contingencies Agency. "Om oss". [https://www.msb.se/sv/om-msb/] Accessed 28 January 2021

4.4 HEALTHCARE ACCESS

4.4.1 Access to healthcare

4.4.1a

Does the constitution explicitly guarantee citizens' right to medical care?

Guaranteed free = 4, Guaranteed right = 3, Aspirational or subject to progressive realization = 2, Guaranteed for some groups, not universally = 1, No specific provision = 0

Current Year Score: 0

2020

World Policy Analysis Center

4.4.1b

Access to skilled birth attendants (% of population)

Input number

Current Year Score: 99.15

1999-2018

WHO/World Bank/United Nations Children's Fund (UNICEF)

4.4.1c

Out-of-pocket health expenditures per capita, purchasing power parity (PPP; current international $)

Input number

Current Year Score: 856.8

2017

WHO Global Health Expenditure database

4.4.2 Paid medical leave

4.4.2a

Are workers guaranteed paid sick leave?

Paid sick leave = 2, Unpaid sick leave = 1, No sick leave = 0

Current Year Score: 2

2020

World Policy Analysis Center

4.4.3 Healthcare worker access to healthcare

4.4.3a

Has the government issued legislation, a policy, or a public statement committing to provide prioritized healthcare services to healthcare workers who become sick as a result of responding to a public health emergency?

Yes = 1 , No = 0

Current Year Score: 0

There is no public evidence that the government of Sweden has issued legislation, a policy or a public statement committing to provide prioritized health care services to healthcare workers who become sick as a result of responding to a public health emergency. The Communicable Disease Act of 2004 (Smittskyddslag (2004:168)) outlines regulations and contingency measures for addressing infectious diseases in Sweden. The law does not specifically state that healthcare professionals should receive priorities for vaccines and other medical counter measures. Section 3e of Chapter 2 on national vaccination programmes states that vaccinations should be administered in a way that prevents the spread of infection, is cost-effective and is both ethical and humanitarian. [1] The national influenza preparedness plan of 2019 mentions the need to have plans for prioritizing treatment and managing possible labour shortages. The plan states, "infectious disease doctors and other relevant authorities can allow contagion protection to take precedence over the considerations that normally apply in the health care sector, if this leads to people being protected from infection." The plans also states, "it is not appropriate to decide that certain priorities should always be more important than others (so-called level grouping), which is otherwise done in the healthcare sector. Instead, this must be re-evaluated continuously with regard to the characteristics and development of the infection". [2] Websites for the Ministry of Health and Social Affairs and the Swedish Civil Contingencies Agency (MSB) do not have additional information. [3,4]

[1] Government of Sweden. 2004. "Smittskyddslag (2004:168)". [http://www.riksdagen.se/sv/dokument-lagar/dokument/svensk-forfattningssamling/smittskyddslag-2004168_sfs-2004-168] Accessed 28 January 2021
[2] Public Health Agency. "Pandemiberedskap". [https://www.folkhalsomyndigheten.se/smittskydd-beredskap/krisberedskap/pandemiberedskap/] Accessed 28 January 2021
[3] Ministry of Health and Social Affairs. "Ministry of Health and Social Affairs". [https://www.government.se/government-of-sweden/ministry-of-health-and-social-affairs/] Accessed 28 January 2021
[4] Swedish Civil Contingencies Agency. "Om oss". [https://www.msb.se/sv/om-msb/] Accessed 28 January 2021

4.5 COMMUNICATIONS WITH HEALTHCARE WORKERS DURING A PUBLIC HEALTH EMERGENCY

4.5.1 Communication with healthcare workers

4.5.1a

Is there a system in place for public health officials and healthcare workers to communicate during a public health emergency?

Yes = 1 , No = 0

Current Year Score: 0

In Sweden, there is insufficient evidence of a two-way communication system in place for public health officials and healthcare workers during a public health emergency. The Public Health Agency (Folkhälsomyndigheten, PHA) website on emergency management states that crisis communication is ready and available 24 hours a day and that the PHA works with national, regional and local authorities to ensure crisis communication. The website also mentions that a crisis

communication plan has been prepared, but it is not available online. [1] PHA planning for pandemics does include a communication plan that outlines the various stakeholders—government agencies, including health professionals, local governments and media—that must be part of the communication strategy during an influenza outbreak. The plan states that channels within organizations as well as across stakeholders must be developed to be responsive to changes during a crisis. [2] The National Pandemic Group (NPG) is responsible for preparedness measures (including communication between health officials and healthcare workers) and consists of the Directors-General or equivalent from the Public Health Authority, the National Board of Health and Welfare, the Swedish Work Environment Authority, the Medical Products Agency, the Swedish Civil Protection and Emergency Planning Agency, and the Swedish Municipalities and County Council. However, the plans does not describe specific channels for public health officials and healthcare workers. [2] Websites for the Public Health Authority and Swedish Civil Contigencies Agency do not have additional information about this. [3,4]

[1] Public Health Agency. "Krisberedskap". [https://www.folkhalsomyndigheten.se/smittskydd-beredskap/krisberedskap/] Accessed 28 January 2021
[2] Public Health Agency. "Pandemiberedskap. Hur vi kommunicerar - ett kunskapsunderlag". [https://www.folkhalsomyndigheten.se/publicerat-material/publikationsarkiv/p/pandemiberedskap-hur-vi-kommunicerar-ett-kunskapsunderlag/] Accessed 28 January 2021
[3] Swedish Civil Contingencies Agency. "Om oss". [https://www.msb.se/sv/om-msb/] Accessed 28 January 2021
[4] Public Health Authority. [https://www.folkhalsomyndigheten.se/] Accessed 28 January 2021

4.5.1b

Does the system for public health officials and healthcare workers to communicate during an emergency encompass healthcare workers in both the public and private sector?

Yes = 1 , No = 0

Current Year Score: 0

In Sweden, there is insufficient evidence of a system in place for public health officials and healthcare workers to communicate during a public health emergency and therefore insufficient of communication with the public and private healthcare sectors. The Public Health Agency (Folkhälsomyndigheten, PHA) website on emergency management states that crisis communication is ready and available 24 hours a day and that the PHA works with national, regional and local authorities to ensure crisis communication. The website also mentions that a crisis communication plan has been prepared, but it is not available online. [1] PHA planning for pandemics does include a communication plan that outlines the various stakeholders—government agencies, including health professionals, local governments and media—that must be part of the communication strategy during an influenza outbreak. The plan states that channels within organizations as well as across stakeholders must be developed to be responsive to changes during a crisis. [2] The National Pandemic Group (NPG) is responsible for preparedness measures (including communication between health officials and healthcare workers) and consists of the Directors-General or equivalent from the Public Health Authority, the National Board of Health and Welfare, the Swedish Work Environment Authority, the Medical Products Agency, the Swedish Civil Protection and Emergency Planning Agency, and the Swedish Municipalities and County Council. However, the plans does not describe specific channels for public health officials and healthcare workers. [2] Websites for the Public Health Authority and Swedish Civil Contigencies Agency do not have additional information about this. [3,4]

[1] Public Health Agency. "Krisberedskap". [https://www.folkhalsomyndigheten.se/smittskydd-beredskap/krisberedskap/] Accessed 28 January 2021
[2] Public Health Agency. "Pandemiberedskap. Hur vi kommunicerar - ett kunskapsunderlag". [https://www.folkhalsomyndigheten.se/publicerat-material/publikationsarkiv/p/pandemiberedskap-hur-vi-kommunicerar-ett-kunskapsunderlag/] Accessed 28 January 2021

[3] Swedish Civil Contingencies Agency. "Om oss". [https://www.msb.se/sv/om-msb/] Accessed 28 January 2021
[4] Public Health Authority. [https://www.folkhalsomyndigheten.se/] Accessed 28 January 2021

4.6 INFECTION CONTROL PRACTICES AND AVAILABILITY OF EQUIPMENT

4.6.1 Healthcare associated infection (HCAI) prevention and control programs

4.6.1a

Is there evidence that the national public health system is monitoring for and tracking the number of healthcare associated infections (HCAI) that take place in healthcare facilities?

Yes = 1 , No = 0

Current Year Score: 1

There is evidence that the national public health system monitors and tracks the number of health care associated infections (HAI) that take place in healthcare facilities. The Public Health Agency (Folkhälsomyndigheten, PHA) is responsible for monitoring health care related infections. [1] The PHA maps the incidences of HAI, analyses developments, supports prevention initiatives, and raises awareness that HAI is unacceptable. [1,2] The PHA runs Swedish HALT, which is a tool for collecting data on healthcare-associated infections, the presence of risk factors in patients, and antibiotic use. The methodology is based on the Protocol of the European Infectious Disease Control Authority (ECDC). [2] The website for the National Board of Health and Welfare mentions that it works with the PHA to raise awareness of HIA and to promote best practices for hygiene. [3]

[1] Public Health Agency. 2020. "Vårdhygien och vårdrelaterade infektioner". [https://www.folkhalsomyndigheten.se/smittskydd-beredskap/vardhygien-och-vardrelaterade-infektioner/] Accessed 28 January 2021
[2] Public Health Agency. "Swedish HALT". [https://www.folkhalsomyndigheten.se/smittskydd-beredskap/vardhygien-och-vardrelaterade-infektioner/svenska-halt/] Accessed 28 January 2021
[3] National Board of Health and Welfare. "Vårdhygien". [https://www.socialstyrelsen.se/utveckla-verksamhet/utbildning/kursamnen/sok-kursamne/vardhygien/] Accessed 28 January 2021

4.7 CAPACITY TO TEST AND APPROVE NEW MEDICAL COUNTERMEASURES

4.7.1 Regulatory process for conducting clinical trials of unregistered interventions

4.7.1a

Is there a national requirement for ethical review (e.g., from an ethics committee or via Institutional Review Board approval) before beginning a clinical trial?

Yes = 1 , No = 0

Current Year Score: 1

In Sweden there is a national requirement for ethical review (e.g. from an ethics committee or via Institutional Review Board approval) before beginning a clinical trial. Law (2003: 460) on ethical testing of research relating to people contains provisions on ethical testing of research on humans and biological material from humans. It also contains provisions for consent to such research. Under the law, all research on humans must undergo an ethics review by the Ethics Review Authority (Etikprövningsmyndigheten). [1] The Board of Agriculture is responsible for ethics reviews of research involving animals. [2]

[1] Government of Sweden. 2003. "Lag (2003:460) om etikprövning av forskning som avser människor". [https://www.riksdagen.se/sv/dokument-lagar/dokument/svensk-forfattningssamling/lag-2003460-om-etikprovning-av-forskning-som_sfs-2003-460] Accessed 28 January 2021
[2] Board of Agriculture. "Ansökan om etiskt godkännande av djurförsök", [https://jordbruksverket.se/djur/ovriga-djur/forsoksdjur-och-djurforsok/forsoksdjur] Accessed 28 January 2021

4.7.1b

Is there an expedited process for approving clinical trials for unregistered medical countermeasures (MCM) to treat ongoing epidemics?

Yes = 1 , No = 0

Current Year Score: 0

There is insufficient public evidence in Sweden of an expedited process for approving clinical trials for unregistered medical countermeasures to treat ongoing pandemics. The Medical Product Agency (MPA, Läkemedelsverket) does not mention the possibility to expedite clinical trials for medical countermeasures to treat ongoing pandemics. [1] As a member of the EU, Sweden participates in the European Medicines Agency (EMA), a networking organisation about the authorisation of medicines. [2] EMA launched the PRIME initiative in 2015, which allows for expedited approvals for medicnes, but does not encompass clinical trials. [3,4] Also as member of the EU, clinical trials follow the European Directive 2001/20/EC, which is fully implemented in the Swedish Regulation relating to clinical trials on medicinal products for human use. [5] In 2020, the MPA noted that medical countermeasures in response to COVID-19 could be put into use without full approval, but that the authority must be informed without delay. [6]

[1] Medical Product Agency. "Kliniska prövning". [https://lakemedelsverket.se/malgrupp/Foretag/Lakemedel/Kliniska-provningar/] Accessed 28 January 2021
[2] European Medicines Agency. "EU Partners". [https://www.ema.europa.eu/en/partners-networks/eu-partners] Accesed 28 January 2021
[3] Labiotech. "EMA Launches its own Fast Track for Breakthrough Therapies". [https://labiotech.eu/medical/ema-launches-fast-track-breakthrough-therapies/] Accessed 28 January 2021
[4] European Medicines Agency. "PRIME: priority medicines"'. [https://www.ema.europa.eu/en/human-regulatory/research-development/prime-priority-medicines] Accessed 28 January 2021
[5] European Commission. "European Directive 2001/20/EC." [https://ec.europa.eu/health/human-use/clinical-trials/directive_en] Accessed 28 January 2021
[6] Medical Product Agency. "Covid-19 clinical trials". [https://www.lakemedelsverket.se/sv/tillstand-godkannande-och-kontroll/klinisk-provning/lakemedel-for-manniskor/kliniska-provningar-under-covid-19#hmainbody1] 28 January 2021

4.7.2 Regulatory process for approving medical countermeasures

4.7.2a

Is there a government agency responsible for approving new medical countermeasures (MCM) for humans?

Yes = 1 , No = 0

Current Year Score: 1

In Sweden, there is a government agency responsible for approving new medical countermeasures for humans. The Medical Products Agency (Läkemedelsverket) is the national authority that is responsible for regulation and surveillance of the development, manufacturing and sale of drugs and other medicinal products. Companies seeking approval to sell medicine in the EU can seeks approval in a member state or centralized approval from the European Medicines Agency (EMEA) while the scientific investigation is carried out by the Swedish Medical Products Agency. [1,2] The Ethical Review Agency (Etikprövningsmyndigheten) is responsible for approving clinical trials. [3]

[1] Medical Products Agency. "Permission, approval and control". [https://www.lakemedelsverket.se/en/permission-approval-and-control] Accessed 28 January 2021
[2] Medical Products Agency. "Kinisk prövning". [https://www.lakemedelsverket.se/sv/tillstand-godkannande-och-kontroll/klinisk-provning] Accessed 28 January 2021
[3] Ethical Review Board. "Om nämnden". [https://www.onep.se/start/om-naemnden/] Accessed 28 January 2021

4.7.2b

Is there an expedited process for approving medical countermeasures (MCM) for human use during public health emergencies?

Yes = 1 , No = 0

Current Year Score: 1

In Sweden, there are procedures to implement an expedited process for approving medical countermeasures for human use during public health emergencies. The Medical Product Agency (MPA, Läkemedelsverket) does not specifically mention the expedited processes for approving medical countermeasures for human use during ongoing pandemics. [1] However, it does allow unregistered drugs and vaccines to be made available on humanitarian grounds via the Compassionate Use Programme. The programme targets patients with a chronic or severely debilitating disease or patients whose disease is considered to be life-threatening and who cannot be adequately treated with an approved drug. These conditions would likely be met during a public health emergency. According to the MPA, "the drug must either be the subject of a marketing authorization application through the central approval procedure or undergoing clinical trials." In addition, there must be satisfactory documentation of the drug's efficacy and safety, where the benefit in relation to the risks is considered to be predominantly positive for the patient group. The approval process involves an application with pharmaceutical documentation about the drug and assessment is typically completed within 60 days. [2] In 2020, the MPA noted that medical countermeasures in response to COVID-19 could be put into use without full approval, but that the authority must be informed without delay. [3] Websites for the Health and Social Affairs, Education and Research, Health and Social Affairs and the Board of Agriculture do not have additional information on expedited processes for medical countermeasures. [4,5,6,7]

[1] Medical Product Agency. "Kliniska läkemedelsprövningar". [https://www.lakemedelsverket.se/sv/tillstand-godkannande-och-kontroll/klinisk-provning] Accessed 28 January 2021
[2] Medical Product Agency. " Läkemedel som ställs till förfogande för användning av humanitära skäl". [https://www.lakemedelsverket.se/sv/tillstand-godkannande-och-kontroll/klinisk-provning/lakemedel-for-manniskor/icke-

godkanda-lakemedel-genom-compassionate-use-program/] Accessed 28 January 2021
[3] Medical Product Agency. "Covid-19 clinical trials". [https://www.lakemedelsverket.se/sv/tillstand-godkannande-och-kontroll/klinisk-provning/lakemedel-for-manniskor/kliniska-provningar-under-covid-19#hmainbody1] Accessed 28 January 2021
[4] Ministry of Health and Social Affairs. "Ministry of Health and Social Affairs. [https://www.government.se/government-of-sweden/ministry-of-health-and-social-affairs/] Accessed 28 January 2021
[5] Ministry of Education and Research. "Ministry of Education and Research". [https://www.government.se/government-of-sweden/ministry-of-education-and-research/] Accessed 28 January 2021
[6] Ministry of Health and Social Affairs. "Ministry of Health and Social Affairs". [https://www.government.se/government-of-sweden/ministry-of-health-and-social-affairs/] Accessed 28 January 2021
[7] Board of Agriculture. "Om Jordbruksverket". [https://jordbruksverket.se/om-jordbruksverket] Accessed 28 January 2021

Category 5: Commitments to improving national capacity, financing plans to address gaps, and adhering to global norms

5.1 INTERNATIONAL HEALTH REGULATIONS (IHR) REPORTING COMPLIANCE AND DISASTER RISK REDUCTION

5.1.1 Official IHR reporting

5.1.1a

Has the country submitted IHR reports to the WHO for the previous calendar year?

Yes = 1 , No = 0

Current Year Score: 1

2020

World Health Organization

5.1.2 Integration of health into disaster risk reduction

5.1.2a

Are epidemics and pandemics integrated into the national risk reduction strategy or is there a standalone national disaster risk reduction strategy for epidemics and pandemics?

Yes = 1 , No = 0

Current Year Score: 1

In Sweden, pandemics are integrated into the national risk reduction strategies. In 2012, the MSB developed "more informed assessments of the various major risks that society as a whole is facing" in a report called "Sweden National Risk Assessment 2012". The report identified influenza pandemics and epizootic pandemic (zoonoses) as potential scenarios for planning

disaster risk reduction strategies. However, reports on scenario planning are not available [1] The Swedish Civil Contingencies Agency (MSB) confirmed in a 2017 update on progress on the Sendai Framework that it is continuing to work on epidemic and pandemic risk reduction and preparedness. [2] In practice, the Public Health Agency has integrated International Health Regulations to reduce risk by detecting and limiting the spread of pandemic disease as soon as possible. [3] In 2020, the MSB announced the launch of a study to examine the country's preparedness to respond to pandemics. [4]

[1] Swedish Civil Contingencies Agency. 2012. "Swedish national risk assessment 2012". [https://www.msb.se/sv/publikationer/swedish-national-risk-assessment-2012/] Accessed 28 January 2021
[2] Swedish Civil Contingencies Agency. 2017. "Sendai Framework for Disaster Risk Reduction 2015 - 2030". [https://www.msb.se/sv/publikationer/the-sendai-framework--swedish-disaster-risk-reduction-governance/] Accessed 28 January 2021
[3] Public Health Agency. "IHR - Internationella hälsoreglementet". [https://www.folkhalsomyndigheten.se/smittskydd-beredskap/krisberedskap/ihr-internationella-halsoreglementet/] Accessed 28 January 2021
[4] MSB. [https://www.msb.se/sv/publikationer/formagor-att-hantera-en-pandemi/] Accessed 28 January 2021

5.2 CROSS-BORDER AGREEMENTS ON PUBLIC HEALTH AND ANIMAL HEALTH EMERGENCY RESPONSE

5.2.1 Cross-border agreements

5.2.1a

Does the country have cross-border agreements, protocols, or MOUs with neighboring countries, or as part of a regional group, with regards to public health emergencies?

Yes = 2, Yes, but there is evidence of gaps in implementation = 1, No = 0

Current Year Score: 2

Sweden has cross-border agreements with regards to public health emergencies. Sweden is a member of the European Medical Corps (EMC), which is part of the European Emergency Response Capacity and pools together specialised teams and equipment offered voluntarily by EU Member States for disaster response operations.[1] Sweden also officially signed an agreement with Finland and Norway in 2012 to formalise cross-border services in healthcare. As part of the agreement, ambulances and helicopters are made available for emergency public health situations across all countries. [2]

[1] European Commission. "European Medical Corps". [https://ec.europa.eu/echo/what-we-do/civil-protection/european-medical-corps_en] Accessed 28 January 2021
[2] European Commission. 2018. "Study on Cross-Border Cooperation: Capitalising on existing initiatives for cooperation in cross-border regions". [https://ec.europa.eu/health/sites/health/files/cross_border_care/docs/2018_crossbordercooperation_annex_en.pdf]. Accessed 28 January 2021

5.2.1b

Does the country have cross-border agreements, protocols, or MOUs with neighboring countries, or as part of a regional group, with regards to animal health emergencies?

Yes = 2, Yes, but there is evidence of gaps in implementation = 1, No = 0

Current Year Score: 2

Sweden has cross-border agreements with regards to animal health emergencies. As a member state of the EU, Sweden participates in the Veterinary Emergency Team, which was established by Commission Decision 2007/142/EC and includes experts in the veterinary sciences, virology, wildlife, laboratory testing, risk management and other relevant areas. [1,2] Sweden also follows Directive 2003/99/EC of the European Parliament and of the Council of 17 November 2003 on the monitoring of zoonoses and zoonotic agents. [3]

[1] European Union. "Countries". [https://europa.eu/european-union/about-eu/countries_en] Accessed 28 January 2021
[2] European Commission. "Veterinary Emergency Response Team". [https://ec.europa.eu/food/animals/animal-diseases/emergency-team_en] Accessed 28 January 2021
[3] European Union. 2003. "Directive 2003/99/EC of the European Parliament and of the Council of 17 November 2003 on the monitoring of zoonoses and zoonotic agents, amending Council Decision 90/424/EEC and repealing Council Directive 92/117/EEC". https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=celex%3A32003L0099. Accessed 28 January 2021

5.3 INTERNATIONAL COMMITMENTS

5.3.1 Participation in international agreements

5.3.1a

Does the county have signatory and ratification (or same legal effect) status to the Biological Weapons Convention?

Signed and ratified (or action having the same legal effect) = 2, Signed = 1, Non-compliant or not a member = 0

Current Year Score: 2

2021

Biological Weapons Convention

5.3.1b

Has the country submitted confidence building measures for the Biological Weapons Convention in the past three years?

Yes = 1 , No = 0

Current Year Score: 1

2021

Biological Weapons Convention

5.3.1c

Has the state provided the required United Nations Security Council Resolution (UNSCR) 1540 report to the Security Council Committee established pursuant to resolution 1540 (1540 Committee)?

Yes = 1 , No = 0

Current Year Score: 1

2021

Biological Weapons Convention

5.3.1d

Extent of United Nations Security Council Resolution (UNSCR) 1540 implementation related to legal frameworks and enforcement for countering biological weapons:

Very good (60+ points) = 4, Good (45–59 points) = 3, Moderate (30–44 points) = 2, Weak (15–29 points) = 1, Very weak (0–14 points) or no matrix exists/country is not party to the BWC = 0

Current Year Score: 4

2021

Biological Weapons Convention

5.3.2 Voluntary memberships

5.3.2a

Does the country meet at least 2 of the following criteria?

- Membership in Global Health Security Agenda (GHSA)

- Membership in the Alliance for Country Assessments for Global Health Security and IHR Implementation (JEE Alliance)

- Membership in the Global Partnership Against the Spread of Weapons and Materials of Mass Destruction (GP)

- Membership in the Australia Group (AG)

- Membership in the Proliferation Security Initiative (PSI)

Needs to meet at least two of the criteria to be scored a 1 on this measure. , Yes for five = 1 , Yes for four = 1 , Yes for three = 1 , Yes for two = 1 , Yes for one = 0 , No for all = 0

Current Year Score: 1

2021

Global Health Security Agenda; JE Alliance; Global Partnership; Australia Group; PSI

5.4 JOINT EXTERNAL EVALUATION (JEE) AND PERFORMANCE OF VETERINARY SERVICES PATHWAY (PVS)

5.4.1 Completion and publication of a Joint External Evaluation (JEE) assessment and gap analysis

5.4.1a

Has the country completed a Joint External Evaluation (JEE) or precursor external evaluation (e.g., GHSA pilot external assessment) and published a full public report in the last five years?

Yes = 1 , No = 0

Current Year Score: 0

2021

WHO Strategic Partnership for IHR and Health Security (SPH); Global Health Security Agenda

5.4.1b

Has the country completed and published, within the last five years, either a National Action Plan for Health Security (NAPHS) to address gaps identified through the Joint External Evaluation (JEE) assessment or a national GHSA roadmap that sets milestones for achieving each of the GHSA targets?

Yes = 1 , No = 0

Current Year Score: 0

2021

WHO Strategic Partnership for IHR and Health Security (SPH); Global Health Security Agenda

5.4.2 Completion and publication of a Performance of Veterinary Services (PVS) assessment and gap analysis

5.4.2a

Has the country completed and published a Performance of Veterinary Services (PVS) assessment in the last five years?

Yes = 1 , No = 0

Current Year Score: 0

2021

OIE PVS assessments

5.4.2b

Has the country completed and published a Performance of Veterinary Services (PVS) gap analysis in the last five years?

Yes = 1 , No = 0

Current Year Score: 0

2021

OIE PVS assessments

5.5 FINANCING

5.5.1 National financing for epidemic preparedness

5.5.1a

Is there evidence that the country has allocated national funds to improve capacity to address epidemic threats within the past three years?

Yes = 1 , No = 0

Current Year Score: 1

There is evidence that Sweden has allocated national funds to improve capacity to address epidemic threats within the past three years. In 2019, the Public Health Authority had funds to assess and revise the pandemic preparedness plans. [1] For 2021, the government has allocated additional funds to fight the COVID-19 pandemic and to improve the country's ability to handle pandemic threats. Extra allocations will go to the Public Health Agency and the National Board of Health and Welfare "to continue to secure national access to personal protective equipment, among other things". [2]

[1] Public Health Agency. "Pandemiberedskap". [https://www.folkhalsomyndigheten.se/smittskydd-beredskap/krisberedskap/pandemiberedskap/] Accessed 28 January 2021
[2] Government of Sweden. "Billions to continue fighting covid-19 in 2021". [https://www.regeringen.se/pressmeddelanden/2020/09/miljardbelopp-for-att-fortsatt-bekampa-covid-19-under-2021/] Accessed 28 January 2021

5.5.2 Financing under Joint External Evaluation (JEE) and Performance of Veterinary Services (PVS) reports and gap analyses

5.5.2a

Does the Joint External Evaluation (JEE) report, National Action Plan for Health Security (NAPHS), and/or national GHSA roadmap allocate or describe specific funding from the national budget (covering a time-period either in the future or within the past five years) to address the identified gaps?

Yes = 1 , No/country has not conducted a JEE = 0

Current Year Score: 0

2021

WHO Strategic Partnership for IHR and Health Security (SPH); Global Health Security Agenda

5.5.2b

Does the Performance of Veterinary Services (PVS) gap analysis and/or PVS assessment allocate or describe specific funding from the national budget (covering a time-period either in the future or within the past five years) to address the identified gaps?

Yes = 1 , No/country has not conducted a PVS = 0

Current Year Score: 0

2021

OIE PVS assessments

5.5.3 Financing for emergency response

5.5.3a

Is there a publicly identified special emergency public financing mechanism and funds which the country can access in the face of a public health emergency (such as through a dedicated national reserve fund, an established agreement with the World Bank pandemic financing facility/other multilateral emergency funding mechanism, or other pathway identified through a public health or state of emergency act)?

Yes = 1 , No = 0

Current Year Score: 1

There is a publicly identified special emergency public financing mechanism and funds which the country can access in the face of a public health emergency. The European Union has a fund that can provide financing for emergency humanitarian support for people in need within the EU territory. [1] For 2021, the government has authorized 40bn SEK ($4.8bn) in emergency funds. [2]

[1] European Commission. "Emergency support instrument". [https://ec.europa.eu/echo/what/civil-protection/emergency-support-instrument_en] Accessed 28 January 2021
[2] Government of Sweden. Försvar och samhällets krisberedskap. [https://www.regeringen.se/4a6878/contentassets/bc0f4b1a4ce844f2aa59949d09c93f29/utgiftsomrade-6-forsvar-och-samhallets-krisberedskap.pdf] Accessed 28 January 2021

5.5.4 Accountability for commitments made at the international stage for addressing epidemic threats

5.5.4a

Is there evidence that senior leaders (president or ministers), in the past three years, have made a public commitment either to:
- Support other countries to improve capacity to address epidemic threats by providing financing or support?
- Improve the country's domestic capacity to address epidemic threats by expanding financing or requesting support to improve capacity?
Needs to meet at least one of the criteria to be scored a 1 on this measure., Yes for both = 1, Yes for one = 1, No for both = 0

Current Year Score: 1

There is public evidence senior leaders have made a public commitment to support other countries to improve pandemic preparedness, and evidence of commitments to expand financing to improve domestic capacity. The Minister for Children, the Elderly and Gender Equality has committed to support other countries to improve capacity to address epidemic threats by providing financing. Specifically, the Minister held a plenary session in Geneva as part of the World Health Assembly in May 2019. The Minister expressed that Sweden will continue to help other countries improve AMR resistance work. Sweden is also one of the largest donors to voluntary core support of the World Health Organization. [1] There is also evidence that the Swedish government has also committed funds to improves its domestic capacity to address epidemic threats, although insufficient evidence of a public support statement. For example, in 2019, the Public Health Authority had funds to assess and revise the pandemic preparedness plans. [2] For 2021, the government has allocated additional funds to fight the COVID-19 pandemic and to improve the country's ability to handle pandemic threats. Extra allocations will go to the Public Health Agency and the National Board of Health and Welfare "to continue to secure national access to personal protective equipment, among other things". [3] There is no additional evidence of requesting support from other sources from the Public Health Agency, the National Board of Health and Welfare (Socialstyrelsen) and the Swedish Civil Contingencies Agency (Myndigheten för samhällsskydd och beredskap). [4,5,6]

[1] Ministry of Health and Social Affairs. 2019. "Socialminister Lena Hallengren till Världshälsoförsamlingen i Genève." [https://www.regeringen.se/pressmeddelanden/2019/05/socialminister-lena-hallengren-till-varldshalsoforsamlingen-i-geneve/] Accessed 28 January 2021
[2] Public Health Agency. "Pandemiberedskap". [https://www.folkhalsomyndigheten.se/smittskydd-beredskap/krisberedskap/pandemiberedskap/] Accessed 28 January 2021
[3] Government of Sweden. "Billions to continue fighting covid-19 in 2021".

[https://www.regeringen.se/pressmeddelanden/2020/09/miljardbelopp-for-att-fortsatt-bekampa-covid-19-under-2021/] Accessed 28 January 2021
[4] Public Health Agency. "Pandemiberedskap". [https://www.folkhalsomyndigheten.se/smittskydd-beredskap/krisberedskap/pandemiberedskap/] Accessed 28 January 2021
[5] National Board of Health and Welfare. [https://www.socialstyrelsen.se/] Accessed 28 January 2021
[6] Swedish Civil Contingencies Agency. "Om oss". [https://www.msb.se/sv/om-msb/] Accessed 28 January 2021

5.5.4b

Is there evidence that the country has, in the past three years, either:
- Provided other countries with financing or technical support to improve capacity to address epidemic threats?
- Requested financing or technical support from donors to improve the country's domestic capacity to address epidemic threats?
Needs to meet at least one of the criteria to be scored a 1 on this measure., Yes for both = 1, Yes for one = 1, No for both = 0

Current Year Score: 1

There is evidence that the government has invested finances and provided technical support to assist other countries in improving capacity to address epidemic threats in the past three years. Sweden's main strategy is to contribute core support that gives international actors such the flexibility required to take effective action as needs arise. Annually, Sweden donate one percent of GDP (approximately US$6.2m) to official develop assistance. Recipient organizations include WHO, United Nations, International Red Cross, Gavi, the Vaccine Alliance, and the Global Fund to Fight AIDS, Tuberculosis and Malaria. [1] Sweden has also allocated additional sums to help fight the COVID-19 pandemic. This includes SEK 40 million to WHO's Contingency Fund for Emergencies (CFE), SEK 100 million (US$12m) to the UN's Central Emergency Response Fund (CERF), SEK 100 million (to the World Food Programme (WFP), SEK 50 million (US$6m) to the World Health Organization Regional Office for Africa (WHO/AFRO), SEK 30 million (US$4m) to the International Monetary Fund (IMF) and SEK 50 million (US$12m) to the UN COVID-19 Response and Recovery Multi-Partner Trust Fund (COVID-19 MPTF). [1] There is no evidence that the government has requested financing or technical support from donors to improve the country's domestic capacity to address epidemic threats from the Public Health Authority, Ministry of Foreign Affairs, the United Nations and WHO. [2,3,4,5] The Georgetown Infectious Disease Atlas (GIDA) Global Health Security Tracker reports that Sweden has received US$1.6m, but there is no information about what the funding supported. [6]

[1] Government of Sweden. 2020. "Sweden's response in the global fight against the COVID-19 virus". [https://www.government.se/articles/2020/06/swedens-response-in-the-global-fight-against-the-covid-19-virus/] Accessed 29 January 2021.
[2] Public Health Agency. 2020. "Krisberedskap". [https://www.folkhalsomyndigheten.se/smittskydd-beredskap/krisberedskap/] Accessed 27 January 2021
[3] Ministry of Foreign Affairs. [https://www.government.se/government-of-sweden/ministry-for-foreign-affairs/] Accessed 29 January 2021
[4] UN. Sweden. [https://www.un.org/sg/en/countries/Sweden] Accessed 29 January 2021.
[5] WHO. Sweden. [https://www.euro.who.int/en/countries/Sweden] Accessed 29 January 2021
[6]

5.5.4c

Is there evidence that the country has fulfilled its full contribution to the WHO within the past two years?
Yes = 1 , No = 0

Current Year Score: 1

2021

Economist Impact analyst qualitative assessment based on official national sources, which vary by country

5.6 COMMITMENT TO SHARING OF GENETIC AND BIOLOGICAL DATA AND SPECIMENS

5.6.1 Commitment to sharing genetic data, clinical specimens, and/or isolated specimens (biological materials) in both emergency and nonemergency research

5.6.1a

Is there a publicly available plan or policy for sharing genetic data, clinical specimens, and/or isolated specimens (biological materials) along with the associated epidemiological data with international organizations and/or other countries that goes beyond influenza?

Yes = 1 , No = 0

Current Year Score: 0

There is no publicly available evidence of a plan or policy for Sweden to share genetic data, clinical specimens or isolated specimens with international entities. Websites for the Public Health Agency, Board of Agriculture, Ministry of Health and Social Affairs, Ministry of Education and Research, Ministry of Defence and Ministry of Foreign Affairs do not have publicly available information about sharing genetic data, epidemiological data, clinical specimens, and/or isolated specimens (biological materials) with international organizations and/or other countries. [1, 2, 3, 4, 5, 6]

[1] Public Health Agency. "Folkhälsomyndigheten". [https://www.folkhalsomyndigheten.se/] Accessed 29 January 2021
[2] Board of Agriculture. "Jordsbrukverket". [http://www.jordbruksverket.se/] Accessed 29 January 2021
[3] Ministry of Health and Social Affairs. "Ministry of Health and Social Affairs". [https://www.government.se/government-of-sweden/ministry-of-health-and-social-affairs/] Accessed 29 January 2021
[4] Ministry of Education and Research. Ministry of Education and Research. [https://www.government.se/government-of-sweden/ministry-of-education-and-research/] Accessed 29 January 2021
[5] Ministry of Defence. "Ministry of Defence". [https://www.government.se/government-of-sweden/ministry-of-defence/] Accessed 29 January 2021
[6] Ministry of Foreign Affairs. "Ministry of Foreign Affairs". [https://www.government.se/government-of-sweden/] Accessed 29 January 2021

5.6.1b

Is there public evidence that the country has not shared samples in accordance with the Pandemic Influenza Preparedness (PIP) framework in the past two years?

Yes = 0 , No = 1

Current Year Score: 1

There is no public evidence that Sweden has not shared samples in accordance with the PIP framework in the past year. The World Health Organisation has not reported any non-compliance in the past year by Sweden. [1] Websites for the Public

Health Authority, Board of Agriculture, Ministry of Defence and Ministry of Education and Research do not have additional information. [2,3,4,5] Two of the largest newspapers in Sweden, Dagens Nyheter and Aftonbladet, have not reported on this. [6,7] An online search did not yield any results.

[1] World Health Organisation. "Virus sharing". [http://www.who.int/influenza/pip/virus_sharing/en/] Accessed 29 December 2018
[2] Board of Agriculture. "Jordsbrukverket". [http://www.jordbruksverket.se/] Accessed 19 January 2021
[3] Ministry of Defence. "Ministry of Defence". [https://www.government.se/government-of-sweden/ministry-of-defence/] Accessed 19 January 2021
[4] Ministry of Education and Research. Ministry of Education and Research. [https://www.government.se/government-of-sweden/ministry-of-education-and-research/] Accessed 19 January 2021
[5] Public Health Authority. "Smittskydd & beredskap". [https://www.folkhalsomyndigheten.se/smittskydd-beredskap/] Accessed 19 January 2021
[6] Dagen Nyheter. [https://www.dn.se/] Accessed 27 January 2021
[7] Aftonbladet. [https://www.aftonbladet.se/] Accessed 27 January 2021.

5.6.1c

Is there public evidence that the country has not shared pandemic pathogen samples during an outbreak in the past two years?

Yes = 0 , No = 1

Current Year Score: 1

There is no evidence that Sweden has declined to share pandemic pathogen samples during an outbreak in the past two years. There is no evidence that Sweden has not shared COVID-19 samples. [1] Websites for the Public Health Authority, Board of Agriculture, Ministry of Defence and Ministry of Education and Research do not have additional information. [2,3,4,5] Two of the largest newspapers in Sweden, Dagens Nyheter and Aftonbladet, have not reported on this. [6,7] An online search did not yield any results.

[1] World Health Organization (WHO). Pandemic Influenza Preparedness (PIP) Framework. [https://www.who.int/influenza/pip/en/]. Accessed 11 December 2018.
[2] Board of Agriculture. "Jordsbrukverket". [http://www.jordbruksverket.se/] Accessed 19 January 2021
[3] Ministry of Defence. "Ministry of Defence". [https://www.government.se/government-of-sweden/ministry-of-defence/] Accessed 19 January 2021
[4] Ministry of Education and Research. Ministry of Education and Research. [https://www.government.se/government-of-sweden/ministry-of-education-and-research/] Accessed 19 January 2021
[5] Public Health Authority. "Smittskydd & beredskap". [https://www.folkhalsomyndigheten.se/smittskydd-beredskap/] Accessed 19 January 2021
[6] Dagen Nyheter. [https://www.dn.se/] Accessed 27 January 2021
[7] Aftonbladet. [https://www.aftonbladet.se/] Accessed 27 January 2021.

Category 6: Overall risk environment and vulnerability to biological threats

6.1 POLITICAL AND SECURITY RISK

6.1.1 Government effectiveness

6.1.1a

Policy formation (Economist Intelligence score; 0-4, where 4=best)

Input number

Current Year Score: 3

2020

Economist Intelligence

6.1.1b

Quality of bureaucracy (Economist Intelligence score; 0-4, where 4=best)

Input number

Current Year Score: 4

2020

Economist Intelligence

6.1.1c

Excessive bureaucracy/red tape (Economist Intelligence score; 0-4, where 4=best)

Input number

Current Year Score: 4

2020

Economist Intelligence

6.1.1d

Vested interests/cronyism (Economist Intelligence score; 0-4, where 4=best)

Input number

Current Year Score: 3

2020

Economist Intelligence

6.1.1e

Country score on Corruption Perception Index (0-100, where 100=best)

Input number

Current Year Score: 85

2020

Transparency International

6.1.1f

Accountability of public officials (Economist Intelligence score; 0-4, where 4=best)

Input number

Current Year Score: 3

2020

Economist Intelligence

6.1.1g

Human rights risk (Economist Intelligence score; 0-4, where 4=best)

Input number

Current Year Score: 4

2020

Economist Intelligence

6.1.2 Orderly transfers of power

6.1.2a

How clear, established, and accepted are constitutional mechanisms for the orderly transfer of power from one government to another?

Very clear, established and accepted = 4, Clear, established and accepted = 3, One of the three criteria (clear, established, accepted) is missing = 2, Two of the three criteria (clear, established, accepted) are missing = 1, Not clear, not established, not accepted = 0

Current Year Score: 4

2021

Economist Intelligence

6.1.3 Risk of social unrest

6.1.3a

What is the risk of disruptive social unrest?

Very low: Social unrest is very unlikely = 4, Low: There is some prospect of social unrest, but disruption would be very limited = 3, Moderate: There is a considerable chance of social unrest, but disruption would be limited = 2, High: Major social unrest is likely, and would cause considerable disruption = 1, Very high: Large-scale social unrest on such a level as to seriously challenge government control of the country is very likely = 0

Current Year Score: 3

2021

Economist Intelligence

6.1.4 Illicit activities by non-state actors

6.1.4a

How likely is it that domestic or foreign terrorists will attack with a frequency or severity that causes substantial disruption?

No threat = 4, Low threat = 3, Moderate threat = 2, High threat = 1, Very high threat = 0

Current Year Score: 3

2021

Economist Intelligence

6.1.4b

What is the level of illicit arms flows within the country?

4 = Very high, 3 = High, 2 = Moderate, 1 = Low, 0 = Very low

Current Year Score: 2

2020

UN Office of Drugs and Crime (UNODC)

6.1.4c

How high is the risk of organized criminal activity to the government or businesses in the country?

Very low = 4, Low = 3, Moderate = 2, High = 1, Very high = 0

Current Year Score: 4

2021

Economist Intelligence

6.1.5 Armed conflict

6.1.5a

Is this country presently subject to an armed conflict, or is there at least a moderate risk of such conflict in the future?

No armed conflict exists = 4, Yes; sporadic conflict = 3, Yes; incursional conflict = 2, Yes, low-level insurgency = 1, Yes; territorial conflict = 0

Current Year Score: 4

2021

Economist Intelligence

6.1.6 Government territorial control

6.1.6a

Does the government's authority extend over the full territory of the country?

Yes = 1, No = 0

Current Year Score: 1

2021

Economist Intelligence

6.1.7 International tensions

6.1.7a

Is there a threat that international disputes/tensions could have a negative effect?

No threat = 4, Low threat = 3, Moderate threat = 2, High threat = 1, Very high threat = 0

Current Year Score: 3

2021

Economist Intelligence

6.2 SOCIO-ECONOMIC RESILIENCE

6.2.1 Literacy

6.2.1a

Adult literacy rate, population 15+ years, both sexes (%)

Input number

Current Year Score: 99.9

2008-2018

United Nations Development Programme (UNDP); United Nations Educational, Scientific and Cultural Organization (UNESCO); The Economist Intelligence Unit

6.2.2 Gender equality

6.2.2a

United Nations Development Programme (UNDP) Gender Inequality Index score

Input number

Current Year Score: 0.96

2018

United Nations Development Programme (UNDP); The Economist Intelligence Unit

6.2.3 Social inclusion

6.2.3a

Poverty headcount ratio at $1.90 a day (2011 PPP) (% of population)

Input number

Current Year Score: 0.1

2017

World Bank; Economist Impact

6.2.3b

Share of employment in the informal sector

Greater than 50% = 2, Between 25-50% = 1, Less than 25% = 0

Current Year Score: 0

According to Smart City Sweden, the informal sector in Sweden, excluding agriculture, amounted to 3.9 per cent of total wage payments. [1]

[1] Smart City Sweden. Goal 8: Decent work and economic growth. [https://smartcitysweden.com/global-goals/decent-work-economic-growth/] Accessed 29 January 2021

6.2.3c

Coverage of social insurance programs (% of population)

Scored in quartiles (0-3, where 3=best)

Current Year Score: 3

2016, or latest available

World Bank; Economist Impact calculations

6.2.4 Public confidence in government

6.2.4a

Level of confidence in public institutions

Input number

Current Year Score: 2

2021

Economist Intelligence Democracy Index

6.2.5 Local media and reporting

6.2.5a

Is media coverage robust? Is there open and free discussion of public issues, with a reasonable diversity of opinions?

Input number

Current Year Score: 2

2021

Economist Intelligence Democracy Index

6.2.6 Inequality

6.2.6a

Gini coefficient

Scored 0-1, where 0=best

Current Year Score: 0.3

Latest available.

World Bank; Economist Impact calculations

6.3 INFRASTRUCTURE ADEQUACY

6.3.1 Adequacy of road network

6.3.1a

What is the risk that the road network will prove inadequate to meet needs?

Very low = 4, Low = 3, Moderate = 2, High = 1, Very high = 0

Current Year Score: 4

2021

Economist Intelligence

6.3.2 Adequacy of airports

6.3.2a

What is the risk that air transport will prove inadequate to meet needs?

Very low = 4, Low = 3, Moderate = 2, High = 1, Very high = 0

Current Year Score: 4

2021

Economist Intelligence

6.3.3 Adequacy of power network

6.3.3a

What is the risk that power shortages could be disruptive?

Very low = 4, Low = 3, Moderate = 2, High = 1, Very high = 0

Current Year Score: 3

2021

Economist Intelligence

6.4 ENVIRONMENTAL RISKS

6.4.1 Urbanization

6.4.1a

Urban population (% of total population)

Input number

Current Year Score: 87.71

2019

World Bank

6.4.2 Land use

6.4.2a

Percentage point change in forest area between 2006–2016

Input number

Current Year Score: 0.24

2008-2018

World Bank; Economist Impact

6.4.3 Natural disaster risk

6.4.3a

What is the risk that the economy will suffer a major disruption owing to a natural disaster?
Very low = 4, Low = 3, Moderate = 2, High = 1, Very high = 0

Current Year Score: 3

2021

Economist Intelligence

6.5 PUBLIC HEALTH VULNERABILITIES

6.5.1 Access to quality healthcare

6.5.1a

Total life expectancy (years)
Input number

Current Year Score: 82.56

2018

United Nations; World Bank, UNICEF; Institute for Health Metrics and Evaluation (IHME); Central Intelligence Agency (CIA) World Factbook

6.5.1b

Age-standardized NCD mortality rate (per 100 000 population)
Input number

Current Year Score: 300.5

2019

WHO

6.5.1c

Population ages 65 and above (% of total population)
Input number

Current Year Score: 20.2

2019

World Bank

6.5.1d

Prevalence of current tobacco use (% of adults)

Input number

Current Year Score: 28.8

2018

World Bank

6.5.1e

Prevalence of obesity among adults

Input number

Current Year Score: 20.6

2016

WHO

6.5.2 Access to potable water and sanitation

6.5.2a

Percentage of homes with access to at least basic water infrastructure

Input number

Current Year Score: 99

2017

UNICEF; Economist Impact

6.5.2b

Percentage of homes with access to at least basic sanitation facilities

Input number

Current Year Score: 99

2017

UNICEF; Economist Impact

6.5.3 Public healthcare spending levels per capita

6.5.3a

Domestic general government health expenditure per capita, PPP (current international $)

Input number

Current Year Score: 4959.52

2018

WHO Global Health Expenditure database

6.5.4 Trust in medical and health advice

6.5.4a

Trust medical and health advice from the government

Share of population that trust medical and health advice from the government , More than 80% = 2, Between 60-80%, or no data available = 1, Less than 60% = 0

Current Year Score: 1

2018

Wellcome Trust Global Monitor 2018

6.5.4b

Trust medical and health advice from medical workers

Share of population that trust medical and health advice from health professionals , More than 80% = 2, Between 60-80%, or no data available = 1, Less than 60% = 0

Current Year Score: 2

2018

Wellcome Trust Global Monitor 2018